



S8230

Version 1.01

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Before you begin...

Check the box contents!

The retail motherboard package should contain the following:

	1x S8230 Motherboard
	6 x Serial ATA Cable
	1 x USB2.0 cable
	1 x S8230 User's manual
	1 x S8230 Quick reference guide
	1 x TYAN [®] Driver CD
	1 x I/O shield
	2 x mini SAS Cable

Chapter 1: Instruction

1.1 Congratulations

You have purchased the powerful TYAN® S8230 motherboard, based on the AMD® SP5100 chipset. The S8230 is designed to support dual AMD® 45nm 8-Core/12-Core Opteron 6100 Series Processors and up to 256GB of 800, 1066 and 1333MHz UNB or REG/ECC DDR3 memory, as well as low-voltage DDR3 memory modules. Leveraging advanced technology from AMD®, the S8230 is capable of offering scalable 32 and 64-bit computing, high-bandwidth memory design, and lightning-fast PCI-E bus implementation.

The S8230 not only empowers you in today's demanding IT environment but also offers a smooth path for future application upgradeability. All of these rich feature sets provides the S8230 with the power and flexibility to meet demanding requirements for today's IT environments.

Remember to visit the TYAN® website at <http://www.tyan.com>. There you can find all the information on all TYAN® products as well as all the supporting documentation, FAQs, Drivers and BIOS upgrades.

1.2 S8230 Hardware Specifications

Processor	Supported CPU Series	AMD 45nm 8-Core/12-Core Opteron 6100 Series Processors (Magny-Cours)
	Socket Type / Q'ty	G34 1944-pin / (2)
	Average CPU Power (ACP) wattage	Up to 105W
	System Bus	Up to 6.4 GT/s Hyper-Transport link support / (4) HT3; 12MB L3 per socket
Chipset	Chipset	AMD SR5690 (5670) + SP5100
	Super I/O	Winbond W83627
Memory	DIMM slot Qty	(8)+(8) DIMM slots
	DIMM Type / Speed	U/RDDR3 & LV RDDR3, 800/1066/1333MHz
	Capacity	Up to 256GB
	Memory channel	4 Channels per CPU
Expansion Slots	PCI-E	1.35V/ 1.5V
		(1) PCI-E Gen.2 x8 slot (w/ x4 link)
		(1) PCI-E Gen.2 x8 slot
		(1) PCI-E Gen.2 x16 slot (w/ x16 or x8 link)
	PCI	(1) PCI-E Gen.2 x8 slot (w/ x0 or x8 link)
		(2) PCI 32-bit slots

Recommended Barebones / Chassis	1U Barebones	GT62-B8230-LE	
LAN	Port Q'ty	(4)	
	Controller	(2) Intel 82574L / (2) Intel 82576EB	
Storage	SAS	Connector	(2) Mini-SAS connectors (support 4 HDD's/cable)
		Controller	LSI SAS2008 (for S8230WGM4NR and S8230WGM4NR-LE only)
		Speed	6.0 Gb/s
		RAID	RAID 0/1/1E/10 (LSI Integrated RAID)
	SATA	Connector	(6) SATA
		Controller	AMD SP5100
		Speed	3.0 Gb/s
		RAID	RAID 0/1/10/5 (Promise Integrated RAID)
Graphic	Connector type	D-Sub 15-pin	
	Resolution	1600x1200@60Hz	
	Chipset	Aspeed AST2050	
Input /Output	USB	(6) USB2.0 ports (2 at rear, 2 via cable, 2 Vertical [Type A] onboard)	
	COM	(2) ports (1 at rear, 1 via cable)	
	SAS	(2) Mini-SAS (4-in-1) connectors	
	VGA	(1) D-Sub 15-pin VGA port	
	RJ-45	(4) GbE ports	
	Power	ATX12V / Universal 24-pin + 8-pin + 8-pin power connectors	
	Front Panel	(1) 2x12-pin SSI front panel header	
	SATA	(6) SATA-II connectors	
System Monitoring	Chipset	Winbond W83793G	
	Voltage	Monitors voltage for CPU, memory, chipset & power supply	
	Fan	(12) Total ((7) 4-pin headers + (5) 8-pin headers)	
	Temperature	Monitors temperature for CPU & system environment	
	LED	Fan fail LED indicator / Over temperature warning indicator / Fan & PSU fail LED indicator	
	Others	Watchdog timer support	
Server Management	Onboard Chipset	Onboard Aspeed AST2050	
	AST2050 IPMI Feature	IPMI 2.0 compliant baseboard management controller (BMC) / USB 2.0 virtual hub	
	AST2050 iKVM Feature	24-bit high quality video compression / Dual 10/100 Mb/s MAC interfaces	
BIOS	Brand / ROM size	AMI / 4MB	

	Feature	Plug and Play (PnP) /PCI2.3 /WfM2.0 /SMBIOS2.3 /PXE boot / ACPI 2.0 power management /Power on mode after power recovery / User-configurable H/W monitoring
Physical Dimension	Form Factor	E-ATX
	Board Dimension	12"x13" (305x330mm)
Operating System	OS supported list	Please visit our web site for the latest update.
Regulation	FCC (DoC)	Class B
	CE (DoC)	Yes
Operating Environment	Operating Temp.	10° C ~ 35° C (50° F ~ 95° F)
	Non-operating Temp.	- 40° C ~ 70° C (-40° F ~ 158° F)
	In/Non-operating Humidity	90%, non-condensing at 35° C
RoHS	RoHS 6/6 Complaint	Yes
Package Contains	Motherboard	(1) S8230 Motherboard
	Manual	(1) User's manual / (1) Quick Ref. Guide
	Installation CD	(1) TYAN installation CD
	I/O Shield	(1) I/O Shield
	Cable	(6) SATA signal cables
	SATA	(2) mini-SAS cables (for S8230WGM4NR and S8230WGM4NR-LE only)
	SAS	
Optional accessories	Riser Card	M2091, PCI-E x16 1U riser card (left)

S8230 SKU Comparison Table

	S8230WGM4NR	S8230GM4NR	S8230WGM4NR-LE	S8230GM4NR-LE
AMD SR5690	Yes	Yes		
AMD SR5670			Yes	Yes
AMD SP5100	Yes	Yes	Yes	Yes
BMC (AST2050)	Yes	Yes	Yes	Yes
LSA2008 SAS	Yes		Yes	
Memory DIMM	16	16	16	16
PCIe Slots	4	4	2	2
VGA	Yes	Yes	Yes	Yes
COM	Yes	Yes	Yes	Yes
SATAII Ports	6	6	6	6

1.3 Software Specifications

For OS (operation system) support, please check with TYAN® support for latest information.

Remember to visit our Web site at <http://www.tyan.com> for the latest AST2050 User's Guide.

Chapter 2: Board Installation

You are now ready to install your motherboard.

How to install our products right... the first time

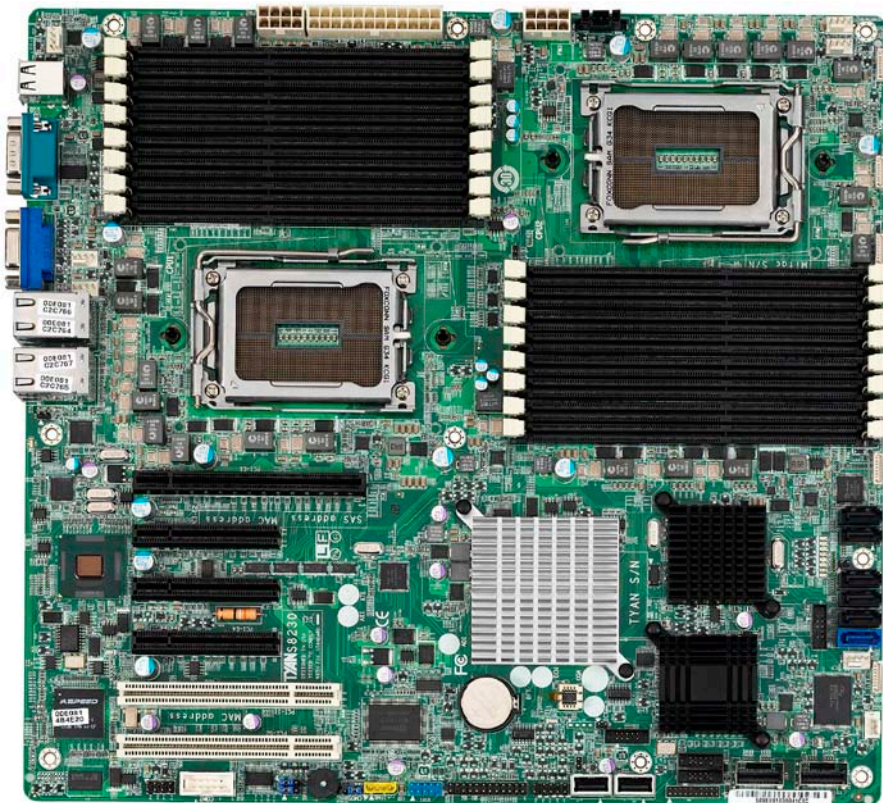
The first thing you should do is reading this user's manual. It contains important information that will make configuration and setup much easier. Here are some precautions you should take when installing your motherboard:

- (1) Ground yourself properly before removing your motherboard from the antistatic bag. Unplug the power from your computer power supply and then touch a safely grounded object to release static charge (i.e. power supply case). For the safest conditions, MiTAC recommends wearing a static safety wrist strap.
- (2) Hold the motherboard by its edges and do not touch the bottom of the board, or flex the board in any way.
- (3) Avoid touching the motherboard components, IC chips, connectors, memory modules, and leads.
- (4) Place the motherboard on a grounded antistatic surface or on the antistatic bag that the board was shipped in.
- (5) Inspect the board for damage.

The following pages include details on how to install your motherboard into your chassis, as well as installing the processor, memory, disk drives and cables.

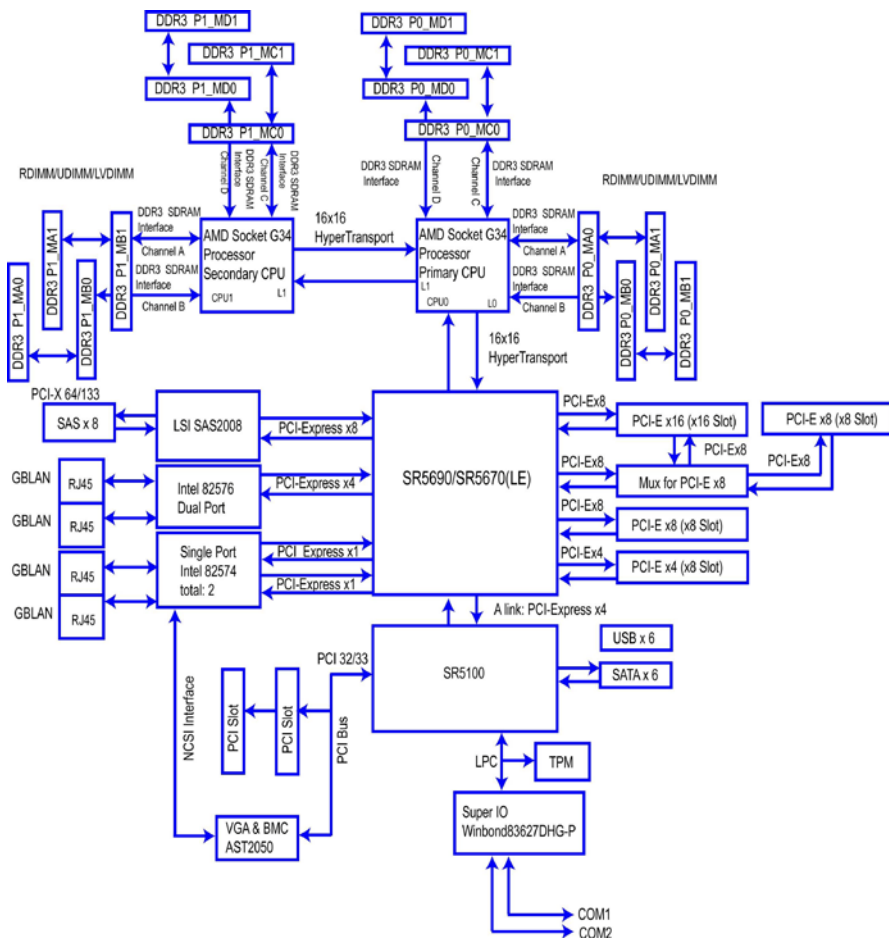
NOTE: Do not apply power to the board if it has been damaged.

2.1 Board Image



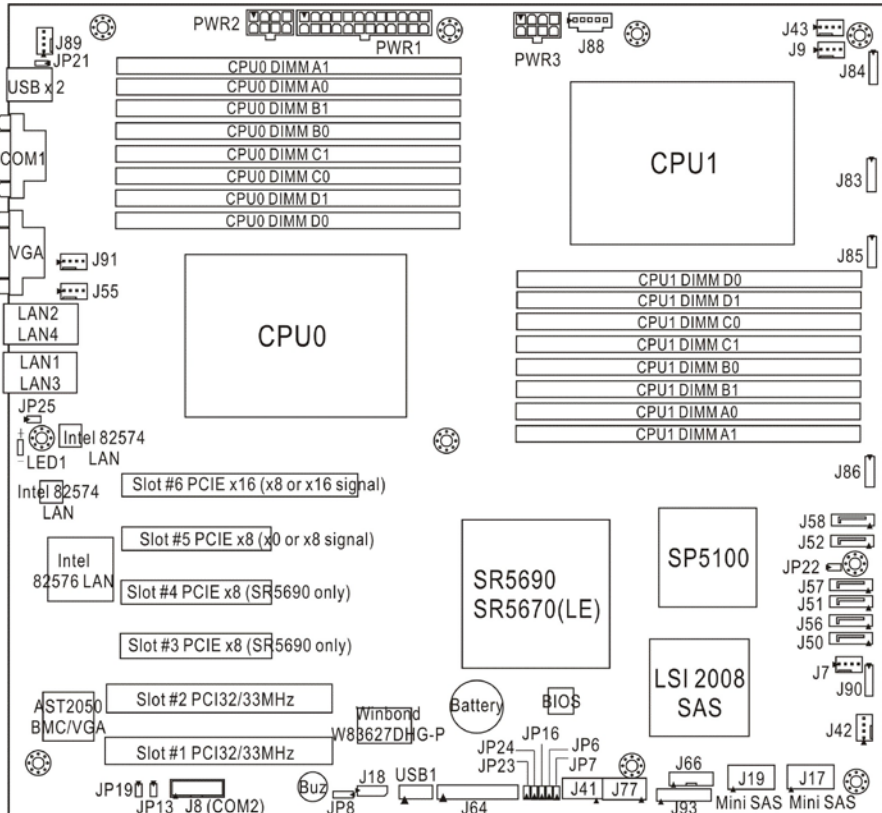
This picture is representative of the latest board revision available at the time of publishing. The board you receive may not look exactly like the above picture.

2.2 Block Diagram



S8230 Block Diagram

2.3 Board Parts, Jumpers and Connectors





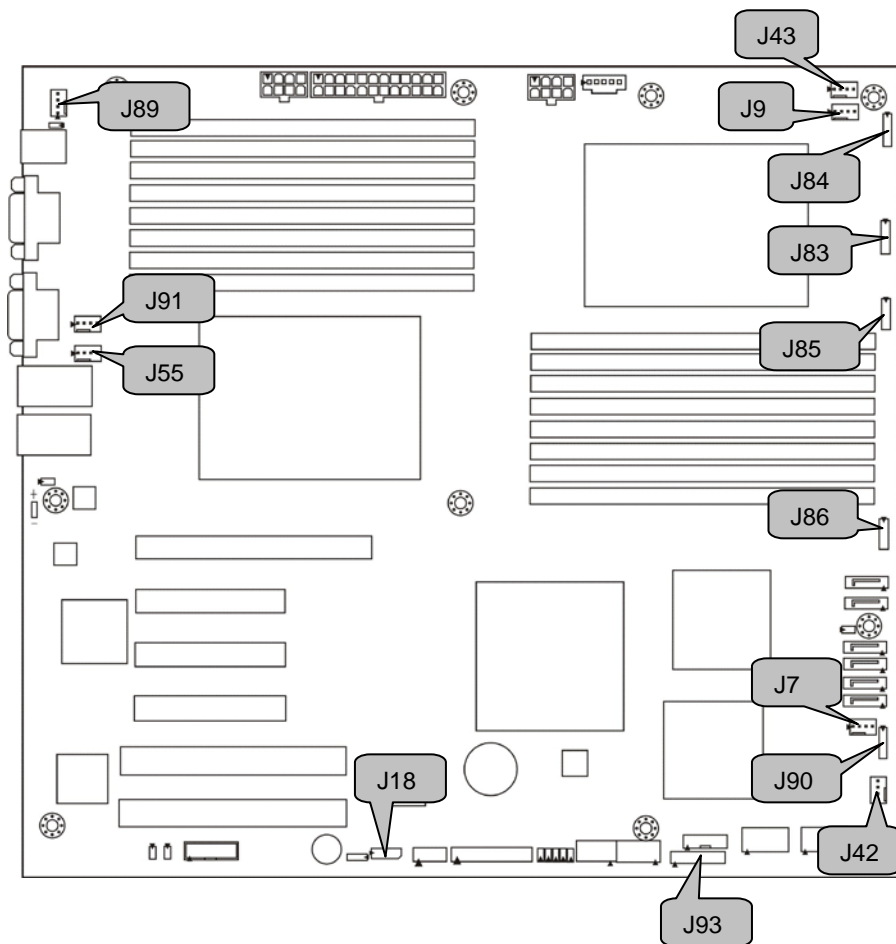
This diagram is representative of the latest board revision available at the time of publishing. The board you receive may not look exactly like the above diagram. But for the DIMM number please refer to the above placement for memory installation. For the latest board revision, please visit our web site at <http://www.tyan.com>.

Jumpers & Connectors


Jumper/Connector	Function
J7/J42/J43/J89/J91	4-pin Fan Connectors
J83/J84/J85/J86/J90	8-pin 4056 FAN Connector (Barebones use only)
J55/J9	4-pin CPU0/CPU1 Fan Header
J93	2x10 pin Fan Connector (Barebones use only)
J8 (COM2)	COM2 Header
J17/J19	Mini-SAS Connector
J18	IPMB Connector
J41/J77	Vertical [Type A] USB Connectors
J50/J56/J51/J57/J52/J58	SATA0/SATA1/SATA2/SATA3/SATA4/SATA5
J64	Front Panel Connector
J66	SAS Fault LED
J88	PSMI Connector
LED1	ID LED
USB1	USB Front Panel Header
JP6	SAS Enable/Disable Jumper
JP7	PCI-E Width Switch for Slot5 and Slot 6
JP8	Clear CMOS Jumper
JP13	TPM Enable/Disable Jumper
JP16	Chassis Intrusion Header
JP19	BMC VGA Enable/Disable Jumper
JP21	CPU0 Memory Voltage Select Jumper
JP22	CPU1 Memory Voltage Select Jumper
JP23	LAN4 Active LED
JP24	LAN2 Active LED
JP25	ID LED Header

Jumper Legend


	OPEN - Jumper OFF	Without jumper cover
	CLOSED - Jumper ON	With jumper cover




J7/J42/J43/J89/J91: 4-Pin FAN Connectors

	Pin	1	2	3	4
	Signal	GND	+12V	Tachometer	PWM Control
	Use this header to connect the cooling fan to your motherboard to keep the system stable and reliable.				


J55/J9: 4-pin CPU0/CPU1 Fan Connectors

	Pin	1	2	3	4
	Signal	GND	+12V	Tachometer	Fan PWM (Speed) Control


J83/J84/J85/J86/J90: 8-pin 4056 Fan Header (Barebones use only)

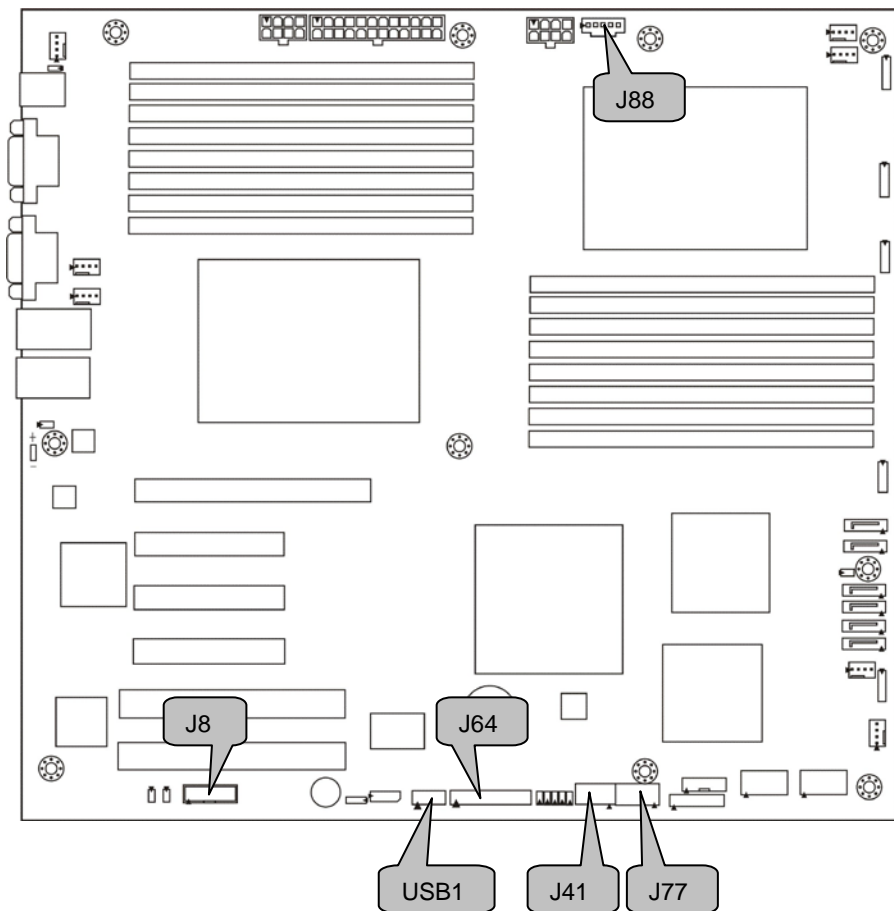
	Signal	Pin	Pin	Signal
	PWM1	1	2	+12V
	TACH1	3	4	GND
	GND	5	6	TACH2
	+12V	7	8	PWM2
NOTE: Do not mix 8-pin Fan headers with 4-pin Fan headers. Mixing these fan headers will cause problems to the system.				

J93: 2x10-Pin FAN connector for TYAN (Barebones use only)


	Signal	Pin	Pin	Signal
	FANIN1	1	2	FANIN6
	FANIN2	3	4	FANIN7
	FANIN3	5	6	FANIN8
	FANIN4	7	8	FANIN9
	FANIN5	9	10	FANIN10
	GND	11	12	KEY
	FANCTL5	13	14	FANCTL4
	FANIN11	15	16	N/C
	FANIN12	17	18	N/C
	N/C	19	20	FANCTL7

J18: IPMB Connector


	Signal	Pin	Pin	Signal
	IPMB_DATA	1	2	GND
	IPMB_CLK	3	4	N/C




USB1: USB Front Panel Connector

	Signal	Pin	Pin	Signal
	PWR_5V	1	2	PWR-5V
	USB_N1	3	4	USB_N2
	USB_P1	5	6	USB_P2
	GND	7	8	GND
	KEY	9	10	N/C


J41/J77: Vertical (Type A) USB Connectors

	Pin	1	2	3	4
	Signal	+5V	USB D-	USB D+	GND


J88: PSMI Connector

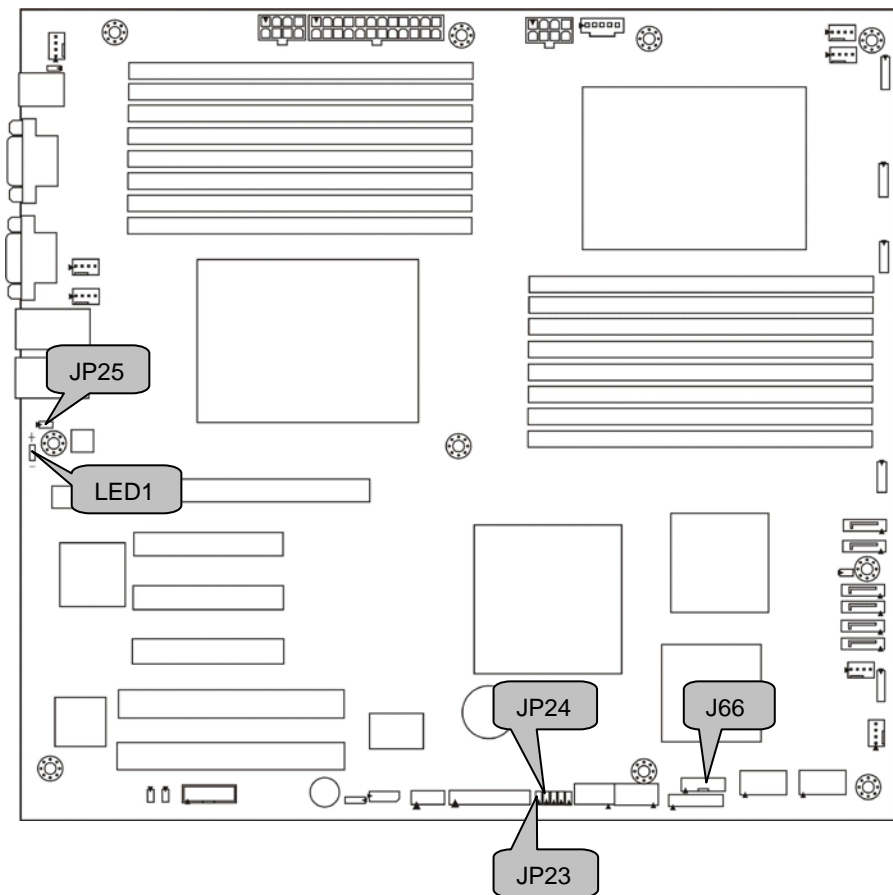
	Pin	1	2	3	4	5
	Signal	SMB_CLK	SMB_DAT	SMBALERT	GND	V3P3

J64: TYFP1 Connector

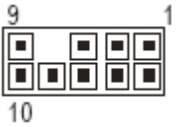
	Signal	Pin	Pin	Signal
	Power LED+	1	2	PWR
	KEY	3	4	System ID LED+
	Power LED -	5	6	System ID LED-
	HD LED+	7	8	Fault LED
	HD LED -	9	10	PSU Fault LED
	Power SW	11	12	LAN1 LED +
	GND	13	14	LAN1 LED -
	Reset SW	15	16	SMB Host Data
	GND	17	18	SMB Host CLK
	ID SW	19	20	INTRU#
	TEMP Sensor	21	22	LAN3 LED +
	NMI	23	24	LAN3 LED -

J8: COM2 Connector


	Signal	Pin	Pin	Signal
	DCD	1	2	DSR
	RXD	3	4	RTS
	TXD	5	6	CTS
	DTR	7	8	RI
	GND	9	10	KEY




J66: SAS Fault LED

	Use this header to connect to the CPLD firmware update tool			
	Signal	Pin	Pin	Signal
	SAS Fault LED 0	1	2	SAS Fault LED 1
	SAS Fault LED 2	3	4	SAS Fault LED 3
	SAS Fault LED 4	5	6	SAS Fault LED 5
	KEY	7	8	SAS Fault LED 7
	SAS Fault LED 6	9	10	Ground


JP23: LAN4 LED Header

	Pin	Signal
	1	LAN4 LED+
	2	LAN4 LED-


JP24: LAN2 LED Header

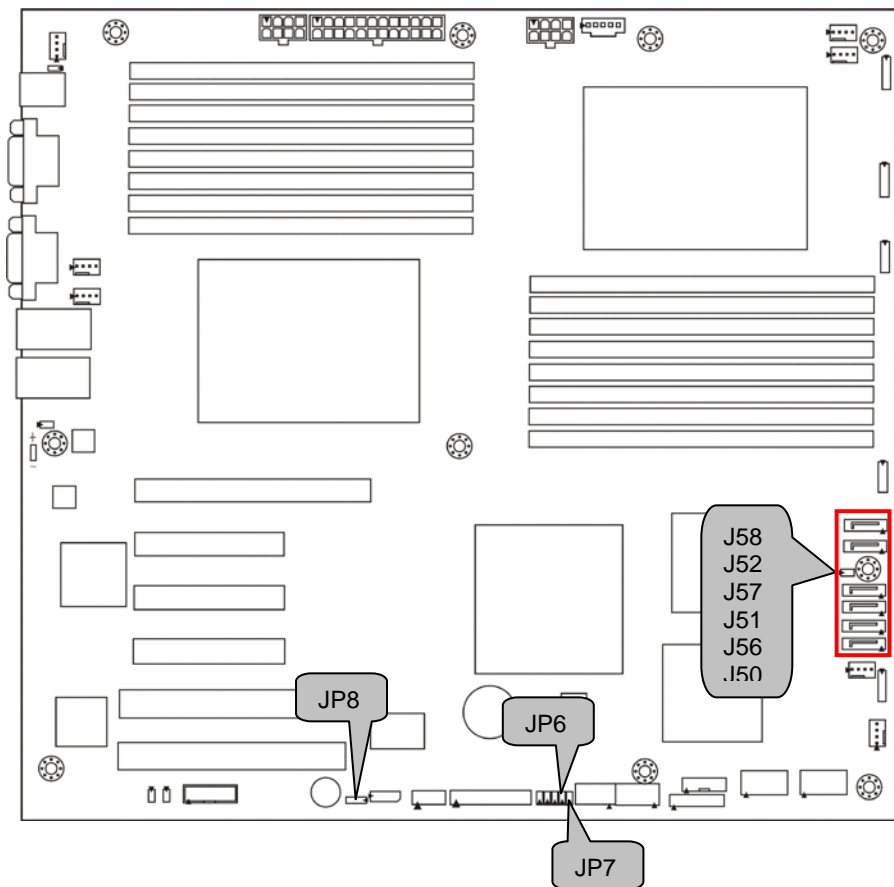
	Pin	Signal
	1	LAN2 LED+
	2	LAN2 LED-

JP25: ID LED Header


	Pin	Signal
	1	ID LED+
	2	ID LED-

LED1: ID LED



	Pin	Signal	
	+	P3V3_AUX	
	-	ID_SW_L	
	State	Color	Description
	On	Blue	System identified
	Off	Off	System not identified
NOTE: IPMI can activate ID LED from remote site. Please visit the TYAN Web Site at http://www.tyan.com to download the latest AST2050 Software Configuration Guide for IPMI settings.			





J50/J56/J51/J57/J52/J58: SATA Connector

	7	GND	Connects to the Serial ATA ready drives via the Serial ATA cable. <table border="1" data-bbox="654 261 940 338"><tr><td>SATA0: J50</td><td>SATA1: J56</td></tr><tr><td>SATA2: J51</td><td>SATA3: J57</td></tr><tr><td>SATA4: J52</td><td>SATA5: J58</td></tr></table>	SATA0: J50	SATA1: J56	SATA2: J51	SATA3: J57	SATA4: J52	SATA5: J58
	SATA0: J50	SATA1: J56							
	SATA2: J51	SATA3: J57							
	SATA4: J52	SATA5: J58							
	6	RXP							
	5	RXN							
	4	GND							
3	TXN								
2	TXP								
1	GND								



JP6: SAS Enable/Disable Jumper

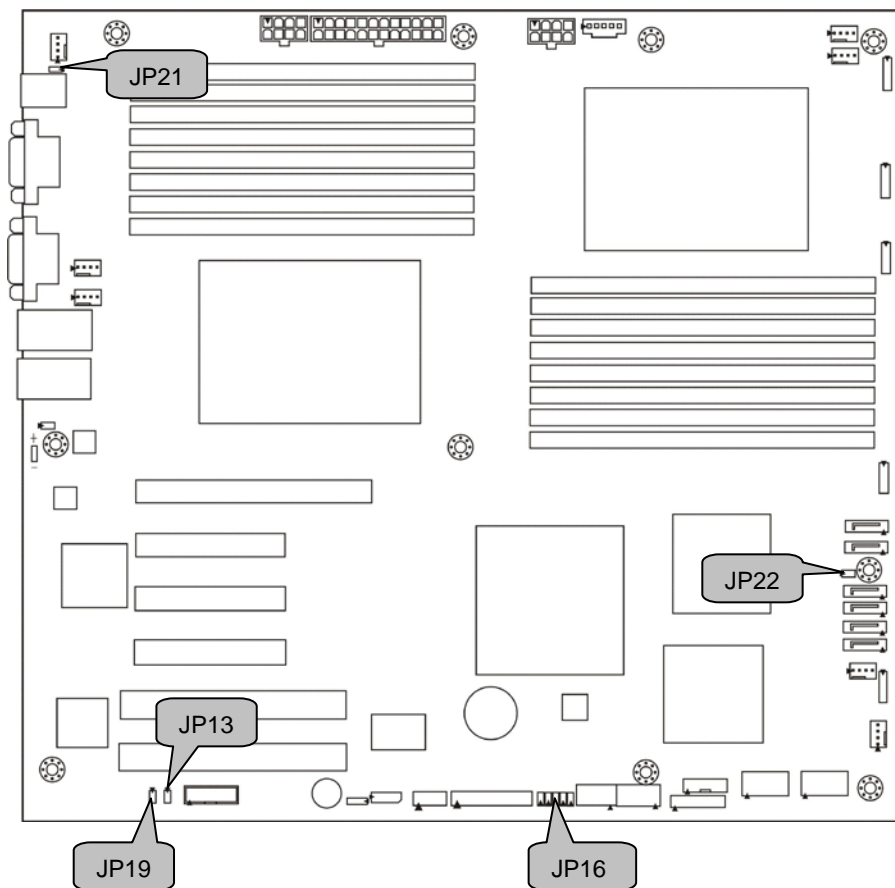
	Open: Normal (Default)
	Closed: Disable on-board SAS function

JP7: PCIE Switch for Slot #6 (PCI-E1) and Slot #5 (PCI-E2)



	Open: Normal(Default) NOTE: If there is no device in PCI-E2, then PCI-E1 can support up to a x16 PCI-E signal. If there is a device in PCI-E2 then PCIe1 can only support up to x8 PCI-E signal
	Closed: Force PCI-E1 to max x8 PCI-E signal

JP8: Clear CMOS Jumper



 Normal (Default)	You can reset CMOS by using this jumper if you have forgotten your system/setup password or need to clear BIOS setting. 1. Power off system and disconnect both power connectors from the motherboard. 2. Put jumper cap back to Pin_1 and Pin_2 (default setting). 3. Use jumper cap to close Pin_2 and Pin_3 for seconds to Clear CMOS. 4. Reconnect power & power on system.
 Clear CMOS	





JP13: TPM Enable/Disable Jumper

	Open: Normal (Default)
	Closed: Disable TPM functions.



JP16: Chassis Intrusion Header

1 		Pin	Signal
		1	INTRUDER#
	Closed: Use this jumper to trigger the system chassis intrusion alarm. (Default)	2	GND



JP19: BMC VGA Enable/Disable Jumper

	Open: Normal (Default)
	Closed: Disable onboard VGA function.

JP21: Low Voltage (1.35V) DDR3 Enable/Disable for CPU0 Jumper

	Open: Support regular 1.5V DDR3 memory (Default)
	Closed: Support for Low Voltage 1.35V DDR3 memory

JP22: Low Voltage (1.35V) DDR3 Enable/Disable for CPU1 Jumper

	Open: Support regular 1.5V DDR3 memory (Default)
	Closed: Support for Low Voltage 1.35V DDR3 memory

2.4 Installing the Processor and Heat sink

The S8230 supported AMD® processors are listed in section **1.2 S8230 Hardware Specifications** on page 4. Check our website at <http://www.tyan.com> for latest processor support.

NOTE: MiTAC is not liable for damage as a result of operating an unsupported configuration.

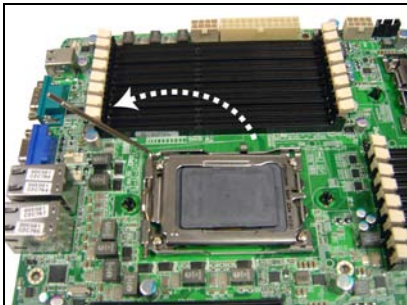
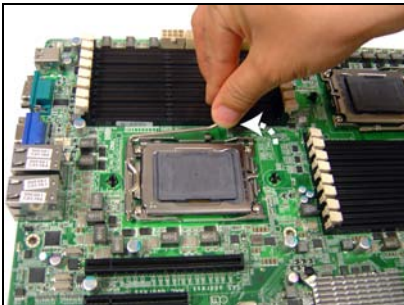
Processor Installation (G34 1944-pin Socket for AMD CPU)

Follow the steps below to install the processors and heat sinks.

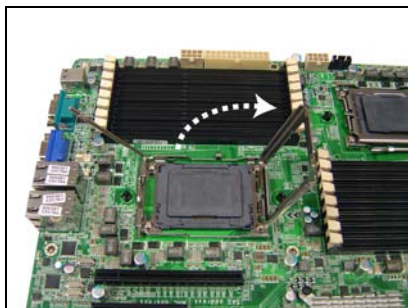
1. Locate the CPU socket.



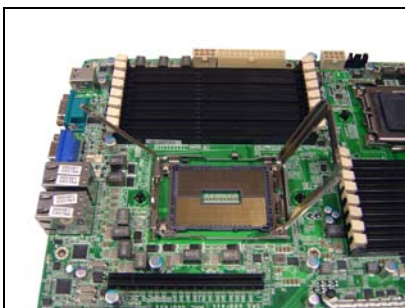
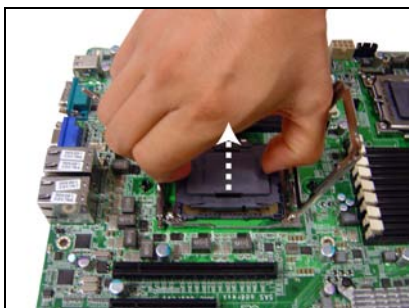
2. Pull the CPU lever slightly away from the socket and then push it to a fully open position.



3. Lift the socket cover to a fully open position.



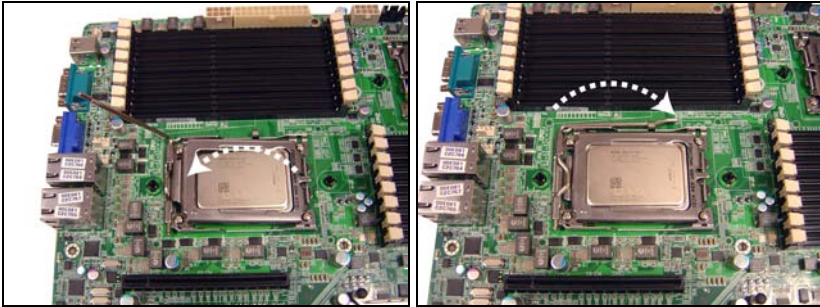
4. Take off the CPU protection cap.



5. Place the CPU in the CPU socket.



6. Close the socket cover and press the CPU socket lever down to lock the CPU in place.



7. Repeat the same procedures to install the second CPU.

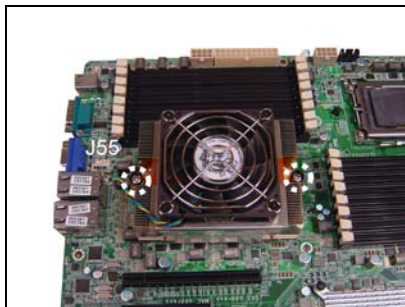
Heat sink Installation

After installing the processor, you should proceed to install the heat sink. The CPU heat sink will ensure that the processor do not overheat and continue to operate at maximum performance for as long as you own them. The overheated processor is dangerous to the motherboard.

For the safest method of installation and information on choosing the appropriate heat sink, using heat sinks validated by AMD®. Please refer to the AMD® website: <http://www.amd.com>

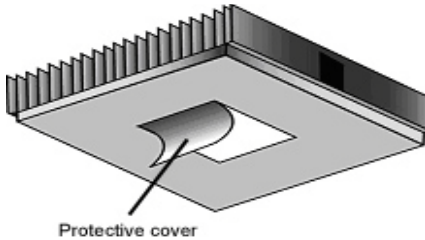
The following diagram illustrates how to install heat sink onto the CPU of S8230.

8. Place the heat sink on top of the CPU and secure it to the motherboard with 2 screws.



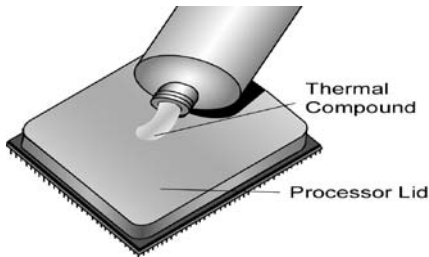
9. Connect the heat sink Fan cable to the CPU0 FAN connector J55.
10. Repeat the same procedures to install the second heat sink (CPU1 FAN Connector J9).

2.5 Thermal Interface Material



There are two types of thermal interface materials designed for use with the processors.

The most common material comes as a small pad attached to the heat sink at the time of purchase. There should be a protective cover over the material. Take care not to touch this material. Simply remove the protective cover and place the heat sink on the processor.

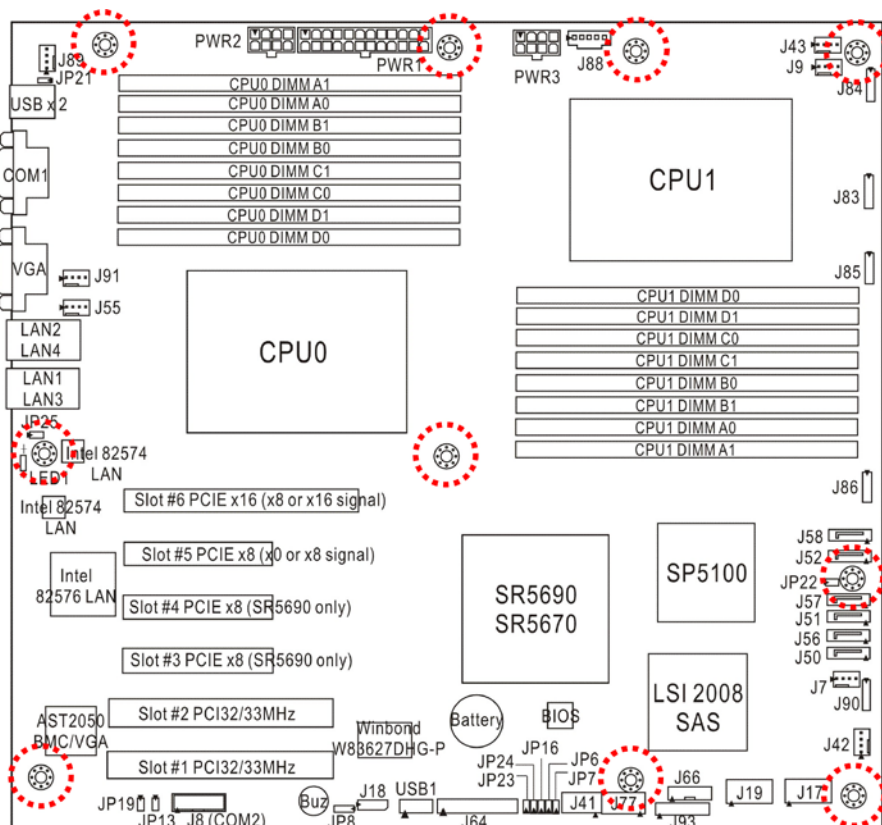


The second type of interface material is usually packaged separately. It is commonly referred to as 'thermal compound'. Simply apply a thin layer on to the CPU lid (applying too much will actually reduce the cooling).

NOTE: Always check with the manufacturer of the heat sink & processor to ensure that the thermal interface material is compatible with the processor and meets the manufacturer's warranty requirements.

2.6 Tips on Installing Motherboard in Chassis

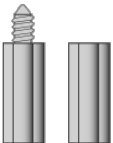

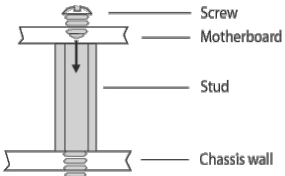
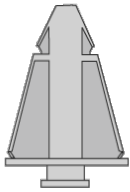
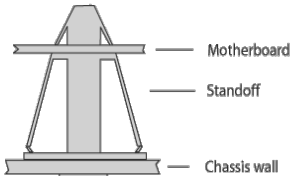
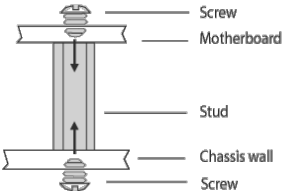
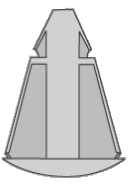
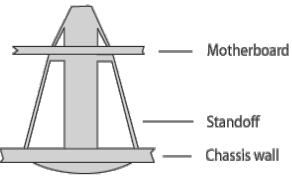
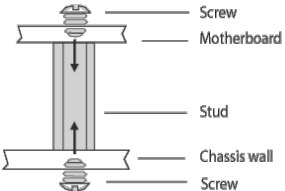
Before installing your motherboard, make sure your chassis has the necessary motherboard support studs installed. These studs are usually metal and are gold in color. Usually, the chassis manufacturer will pre-install the support studs. If you are unsure of stud placement, simply lay the motherboard inside the chassis and align the screw holes of the motherboard to the studs inside the case. If there are any studs missing, you will know right away since the motherboard will not be able to be securely installed.



Some chassis include plastic studs instead of metal. Although the plastic studs are usable, MiTAC recommends using metal studs with screws that will fasten the motherboard more securely in place.

Below is a chart detailing what the most common motherboard studs look like and how they should be installed.

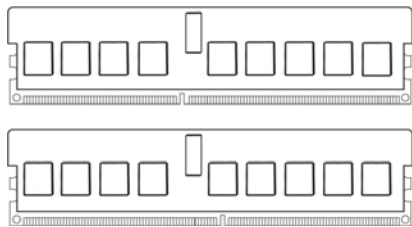
Mounting the Motherboard

Type	Solutions for installing	
		
		
		

2.7 Installing the Memory

Before installing memory, ensure that the memory you have is compatible with the motherboard and processor. Check the TYAN Web site at: www.tyan.com for details of the type of memory recommended for your motherboard.

The following diagram shows common types of DDR3 memory modules.



- Supports up to 256GB total of U/RDDR3 and LV RDDR3 at 800,1066 or 1333MHz speeds
- All installed memory will automatically be detected and no jumpers or settings need changing
- All memory must be of the **same type and density**
- Always populate the memory starting from DIMM A1 first

Recommended Memory Population Table

Memory Configuration Chart																
CPU0									CPU1							
# of DIMM'S	Channel 1		Channel 2		Channel 3		Channel 4		Channel 1		Channel 2		Channel 3		Channel 4	
	A1	A0	B1	B0	C1	C0	D1	D0	A1	A0	B1	B0	C1	C0	D1	D0
1 DIMM	X								X							
2 DIMM	X		X						X		X					
4 DIMM	X		X		X		X		X		X		X		X	
8 DIMM	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

U-DIMM Module Support

DDR3 Speed/Voltage		DDR3 Rank Configuration	
1.35v	1.5v	DIMM0 (A0, B0, C0, D0)	DIMM1 (A1, B1, C1, D1)
800MHz	800MHz		SR and DR
800MHz	800MHz	SR and DR	SR and DR
1066MHz	1066MHz		SR and DR
1066MHz	1066MHz	SR and DR	SR and DR
n/a	1333MHz		SR and DR
n/a	1333MHz	SR and DR	SR and DR

Notes:

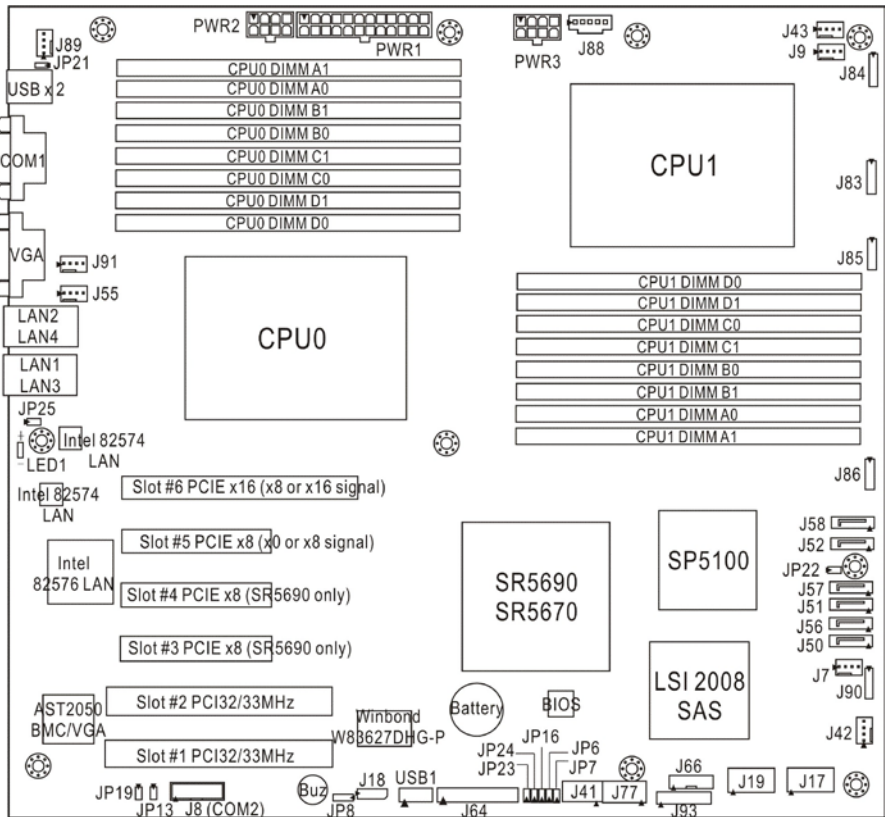
- UDIMM can support up to 4GB sized DIMM's
- Maximum of 8GB per channel
- SR and DR UDDR3 module support **only**
- SR and DR 1.35v Memory MAX speed of 1066MHz in a dual channel configuration
- SR and DR 1.5v Memory MAX speed of 1333MHz in a dual channel configuration

R-DIMM Module Support

DDR3 Speed/Voltage		DDR3 Rank Configuration	
1.35v	1.5v	DIMM0 (A0, B0, C0, D0)	DIMM1 (A1, B1, C1, D1)
800MHz	800MHz	n/a	SR and DR
800MHz	800MHz	n/a	QR
800MHz	800MHz	SR, DR and QR	SR, DR and QR
1066MHz	1066MHz	n/a	SR and DR
1066MHz	1066MHz	n/a	QR
1066MHz	1066MHz	SR and DR	SR and DR
n/a	1066MHz	QR	SR, DR and QR
n/a	1066MHz	SR, DR and QR	QR
n/a	1333MHz	n/a	SR and DR
n/a	1333MHz	n/a	QR
n/a	1333MHz	SR and DR	SR and DR

Notes:

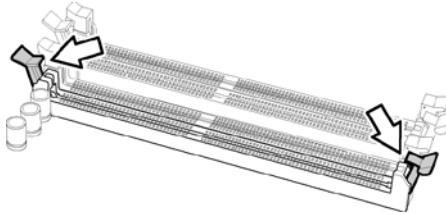
- RDIMM can support up to 16GB sized DIMM's
- SR and DR Memory has a MAX amount of 16GB per channel
- SR and DR 1.35v Memory MAX speed of 1066MHz in a dual channel configuration
- SR and DR 1.5v Memory MAX speed of 1333MHz in a dual channel configuration
- QR Memory has a MAX amount of 32GB per channel
- QR 1.35v Memory MAX speed of 800MHz in a dual channel configuration
- QR 1.5v Memory MAX speed of 1066MHz in a dual channel configuration



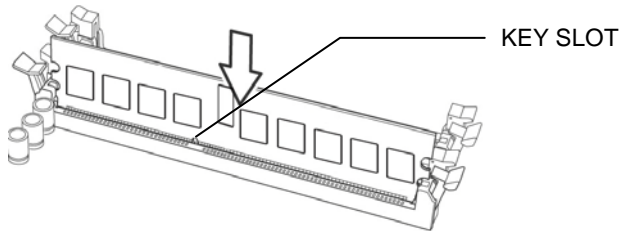
Memory Installation Procedure

Follow these instructions to install memory modules into the S8230.

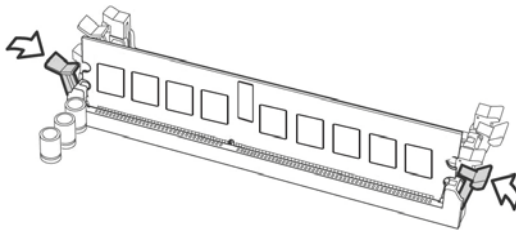
1. Press the locking levers in the direction shown in the following illustration.



2. Align the memory module with the socket. The memory module is keyed to fit only one way in the socket.



3. Seat the module firmly into the socket by gently pressing down until it sits flush with the socket. The locking levers pop up into place.



2.8 Attaching Drive Cables

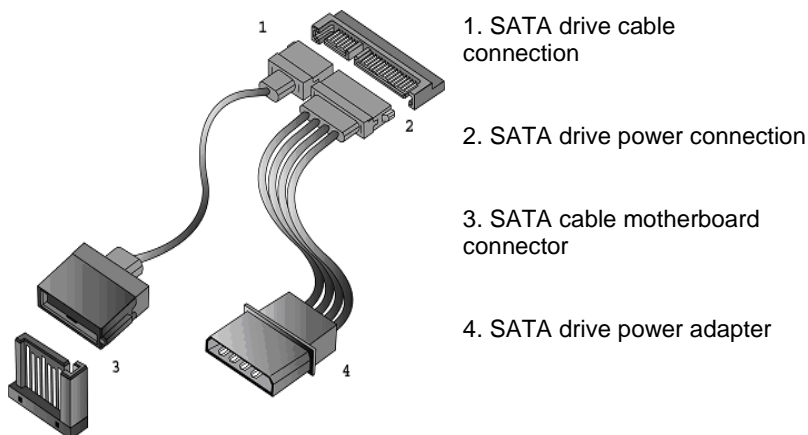
Attaching Serial ATA Cables

S8230 is equipped with 6 Serial ATA (SATA) channels. Connections for the drives are very simple.

There is no need to set Master/Slave jumpers on SATA drives.

If you are in need of SATA/SAS cables or power adapters please contact your place of purchase.

The following pictures illustrate how to connect an SATA drive.



2.9 Installing Add-In Cards

Before installing add-in cards, it's helpful to know if they are fully compatible with your motherboard. For this reason, we've provided the diagrams below, showing the slots that may appear on your motherboard.

PCI-E Gen. 2 x 16 slot (x16 signal)



PCI-E x8 slot (x8 signal)



PCI 32/33MHz slot



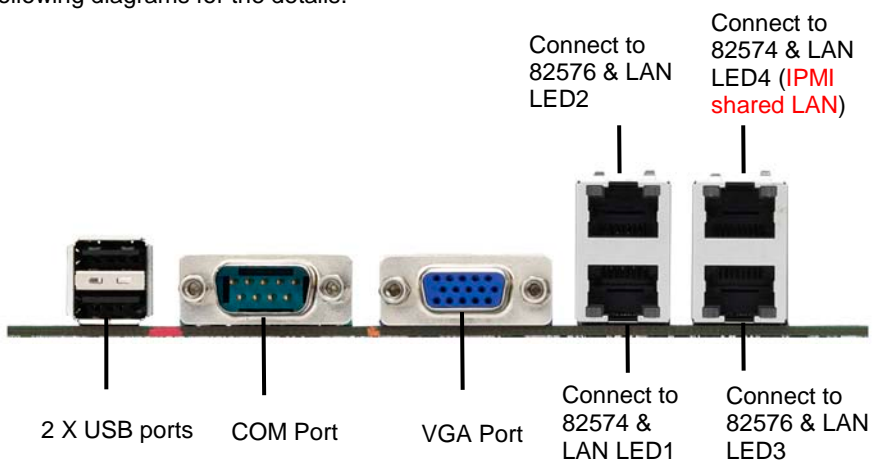
Simply find the appropriate slot for your add-in card and insert the card firmly. Do not force any add-in cards into any slots if they do not seat in place. It is better to try another slot or return the faulty card rather than damaging both the motherboard and the add-in card.

TIP: It's a good practice to install add-in cards in a staggered manner rather than making them directly adjacent to each other. Doing so allows air to circulate within the chassis more easily, thus improving cooling for all installed devices.

NOTE: You must always unplug the power connector to the motherboard before performing system hardware changes to avoid damaging the board or expansion device.

2.10 Connecting External Devices


Connecting external devices to the motherboard is an easy task. The motherboard supports a number of different interfaces through connecting peripherals. See the following diagrams for the details.



NOTE: Peripheral devices can be plugged straight into any of these ports but software may be required to complete the installation.

Onboard LAN LED Color Definition


The two onboard Ethernet ports have green and yellow LEDs to indicate LAN status. The chart below illustrates the different LED states.

10/100/1000 Mbps LAN Link/Activity LED Scheme			
<div>LEFT RIGHT</div> 		Left LED	Right LED
10 Mbps	Link	Green	Off
	Active	Blinking Green	Off
100 Mbps	Link	Green	Green
	Active	Blinking Green	Green
1000 Mbps	Link	Green	Yellow
	Active	Blinking Green	Yellow
No Link		Off	Off


2.11 Installing the Power Supply

There are three power connectors on your S8230. It is required that you have an EPS12V power supply which has one 24-pin and two 8-pin connectors.

- 24-pin (PW1)

	Signal	Pin	Pin	Signal
	+3.3V	1	13	+3.3V
	+3.3V	2	14	-12V
	GND	3	15	GND
	+5V	4	16	PS_ON
	GND	5	17	GND
	+5V	6	18	GND
	GND	7	19	GND
	PS_GD	8	20	N/C
	5VSB	9	21	+5V
	+12V	10	22	+5V
	+12V	11	23	+5V
	+3.3V	12	24	GND

- 8-pin (PW2, PW3)

	Signal	Pin	Pin	Signal
	GND	1	5	+12V
	GND	2	6	+12V
	GND	3	7	+12V
	GND	4	8	+12V

NOTE: Please be aware that ATX 2.x, ATX12V and ATXGES power supplies may **not** be compatible with the board and can damage the motherboard and/or CPU(s).

Applying power to the board:

- Connect the EPS12V 8-pin power connectors. Both PW2 and PW3 are for CPU loading. With light load processors, such as HE model, one 8-pin connector is OK. With SE model processors, both 8-pin power connectors are required.
- Connect the EPS/12V 24-pin power connector.
- Connect power cable to power supply and power outlet.

NOTE: You must unplug the power supply before plugging the power cables to motherboard connectors.

2.12 Finishing Up

Congratulations on making it this far! You have finished setting up the hardware aspect of your computer. Before closing up your chassis, make sure that all cables and wires are connected properly, especially IDE cables and most importantly, jumpers. You may have difficulty powering on your system if the motherboard jumpers are not set correctly.

In the rare circumstance that you have experienced difficulty, you can find help by asking your vendor for assistance. If they are not available for assistance, please find setup information and documentation online at our website or by calling your vendor's support line.

Chapter 3: BIOS Setup

3.1 About the BIOS

The BIOS is the basic input/output system, the firmware on the motherboard that enables your hardware to interface with your software. The BIOS determines what a computer can do without accessing programs from a disk. The BIOS contains all the code required to control the keyboard, display screen, disk drives, serial communications, and a number of miscellaneous functions. This chapter describes the various BIOS settings that can be used to configure your system.

The BIOS section of this manual is subject to change without notice and is provided for reference purposes only. The settings and configurations of the BIOS are current at the time of print and are subject to change, and therefore may not match exactly what is displayed on screen.

This section describes the BIOS setup program. The setup program lets you modify basic configuration settings. The settings are then stored in a dedicated, battery-backed memory (called NVRAM) that retains the information even when the power is turned off.

To start the BIOS setup utility:

1. Turn on or reboot your system.
2. Press during POST (F4 on remote console) to start the BIOS setup utility.

3.1.1 Setup Basics

The table below shows how to navigate in the setup program using the keyboard.

Key	Function
Tab	Moves from one selection to the next
Left/Right Arrow Keys	Changes from one menu to the next
Up/Down Arrow Keys	Moves between selections
Enter	Opens highlighted section
PgUp/PgDn Keys	Changes settings.

3.1.2 Getting Help

Pressing [F1] will display a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window, press [ESC] or the [F1] key again.

3.1.3 In Case of Problems

If you have trouble booting your computer after making and saving the changes with the BIOS setup program, you can restart the computer by holding the power button down until the computer shuts off (usually within 4 seconds); resetting by pressing CTRL-ALT-DEL; or clearing the CMOS.

The best advice is to only alter settings that you thoroughly understand. In particular, do not change settings in the Chipset section unless you are absolutely sure of what you are doing. The Chipset defaults have been carefully chosen either by MiTAC or your system manufacturer for best performance and reliability. Even a seemingly small change to the Chipset setup options may cause the system to become unstable or unusable.

3.1.4 Setup Variations

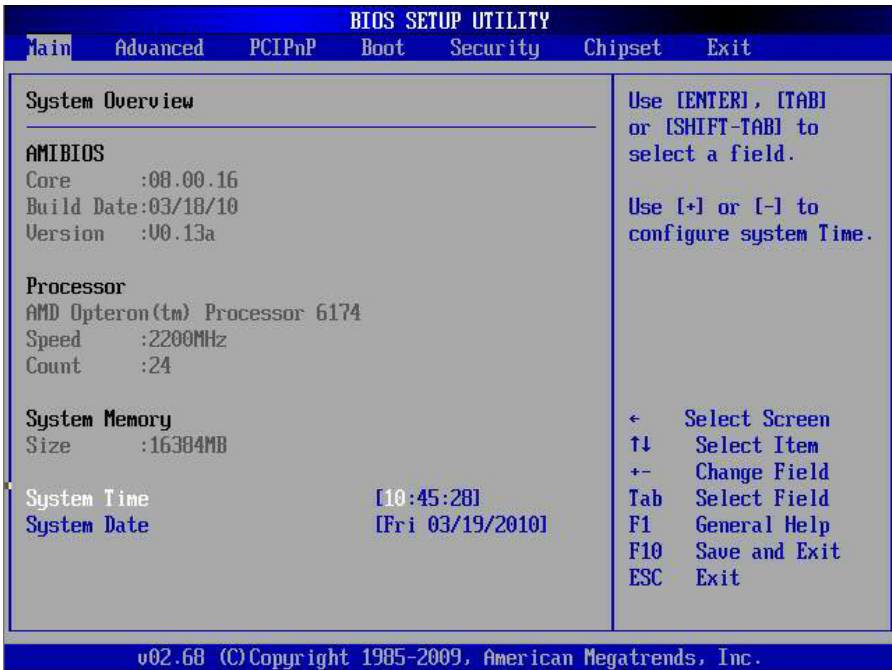
Not all systems have the same BIOS setup layout or options. While the basic look and function of the BIOS setup remains more or less the same for most systems, the appearance of your Setup screen may differ from the charts shown in this section. Each system design and chipset combination requires a custom configuration. In addition, the final appearance of the Setup program depends on the system designer. Your system designer may decide that certain items should not be available for user configuration, and remove them from the BIOS setup program.

NOTE: The following pages provide the details of BIOS menu. Please be noticed that the BIOS menu are continually changing due to the BIOS updating. The BIOS menu provided are the most updated ones when this manual is written. Please visit TYAN's website at <http://www.tyan.com> for the information of BIOS updating.

3.2 Main Menu

In this section, you can alter general features such as the date and time.

Note that the options listed below are for options that can directly be changed within the Main Setup screen.



AMIBIOS

It displays the core number, date of BIOS build and the version of BIOS.

Processor

This displays the CPU information.

System Memory

This displays the amount of system memory present on the system.

System Time / Date setup

System Time: Adjusts the system clock.

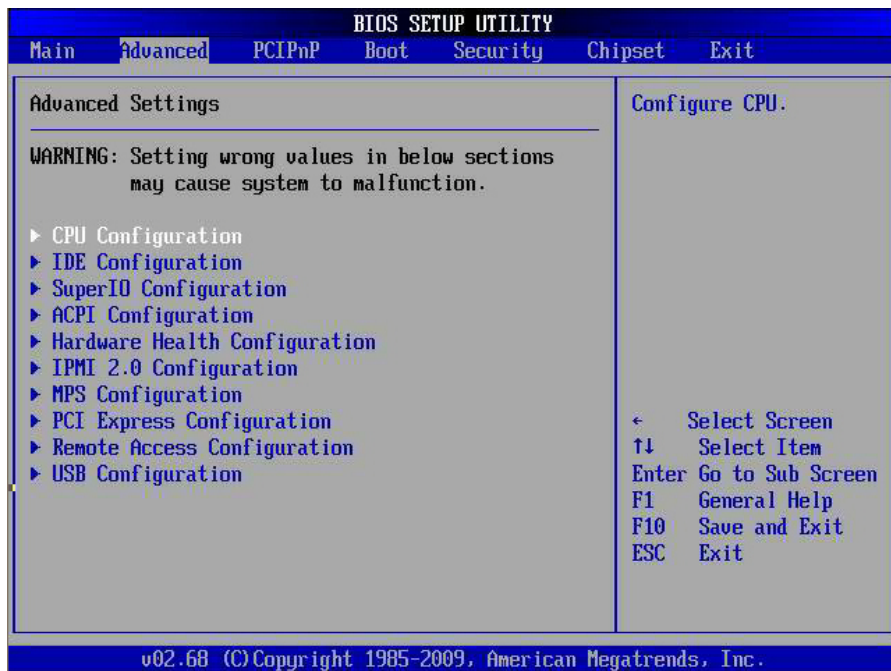
HH (24 hours format): MM (Minutes): SS (Seconds)

System Date: Adjusts the system date.

MM (Months): DD (Days): YYYY (Years)

3.3 Advanced Menu

This section facilitates configuring advanced BIOS options for your system.



CPU Configuration

Configure CPU.

IDE Configuration

Configure the IDE devices.

Super IO Configuration

Configure the Super IO.

ACPI Configuration

Selection for Advanced ACPI Configuration.

Hardware Health Configuration

Configure / monitor the Hardware Health.

IPMI 2.0 Configuration

IPMI configuration including server monitoring and event log.

MPS Configuration

Configure the Multi-Processor Table.

PCI Express Configuration

Configure PCI Express Support.

Remote Access Configuration

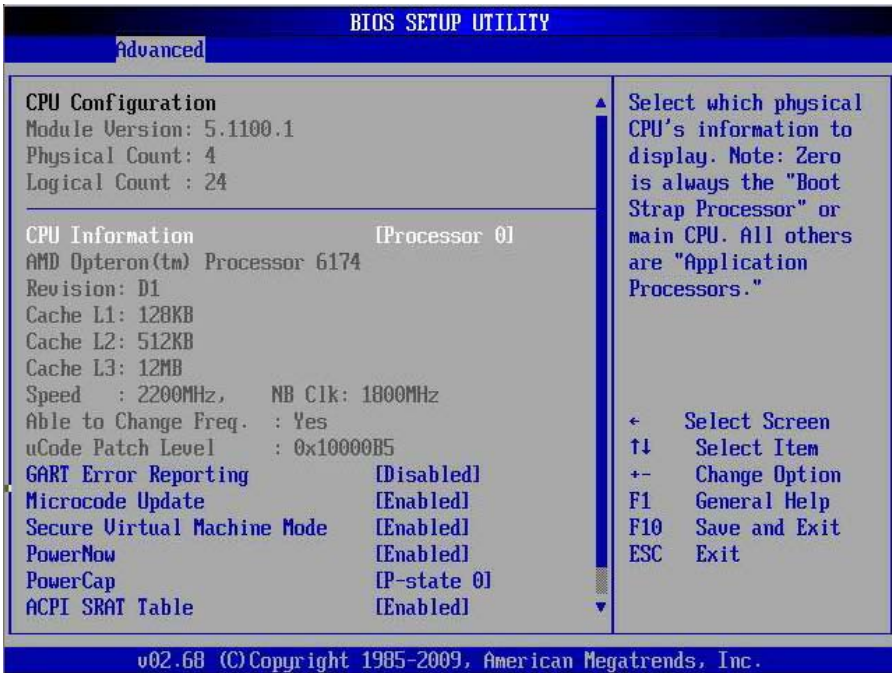
Configure Remote Access.

USB Configuration

Configure the USB support.

3.3.1 Advanced CPU Configuration

This section allows you to fine-tune the processor options.



GART Error Reporting

This option should remain disabled for normal operation. The driver developer may enable it for the purpose of testing.

Disabled / Enabled

Microcode Update

Disabled / **Enabled**

Secure Virtual Machine Mode

Disabled / **Enabled**

PowerNow

Enable/disable the generation of ACPI_PPC, _PSS, and _PCT objects.

Disabled / **Enabled**

PowerCap

The option can decide the highest performance P-state in OS.

P-state 0 / P-state 1 / P-state 2 / P-state 3 / P-state 4

ACPI SRAT Table

Enable or disable the building of ACPI SRAT Table.

Disabled / **Enabled**

CPU Prefetching

Enable or disable CPU prefetching.

Disabled / **Enabled**

IO Prefetching

Enable or disable IO prefetching.

Disabled / **Enabled**

Probe Filter

Initialization mode for Probe Filter.

Auto / Disable / MP Mode

3.3.2 Advanced IDE Configuration



Onboard PCI IDE Controller

Disabled: disables the integrated IDE Controller

Primary: enables only the Primary IDE Controller

Secondary: enables only the Secondary IDE Controller

Both: enables both IDE Controller

Disabled / Primary / Secondary / **Both**

Primary/Secondary/Third/Fourth IDE Master

While entering setup, BIOS auto detects the presence of IDE devices. This displays the status of auto detection of IDE devices.

Hard Disk Write Protect

Disable/Enable device write protection. This will be effective only if device is accessed through BIOS.

Disabled / Enabled

IDE Detect Time Out (Sec)

Select the time out value for detecting ATA/ATAPI device(s).

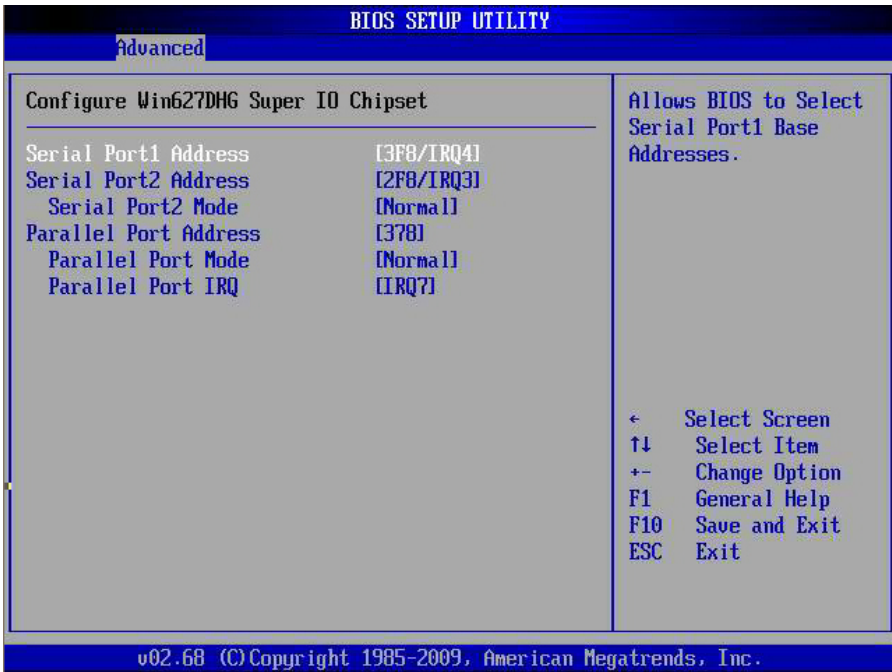
0~35 (at 5 interval)

ATA(Pi) 80Pin Detection

Select the mechanism for detecting 80Pin ATA(PI) Cable.

Host & Device / Host / Device

3.3.3 Super I/O Configuration



Serial Port1 Address

Allows BIOS to configure Serial Port1 Base Address.

Disabled / **3F8/IRQ4** / 2E8/IRQ3

Serial Port2 Address

Allows BIOS to configure Serial Port2 Base Address.

Disabled / **2F8/IRQ3** / 2E8/IRQ3

Serial Port2 Mode

Allows BIOS to select mode for Serial Port2.

Normal / IrDA / Ask IR

Parallel Port Address

Allows BIOS to select Parallel Port Base Address.

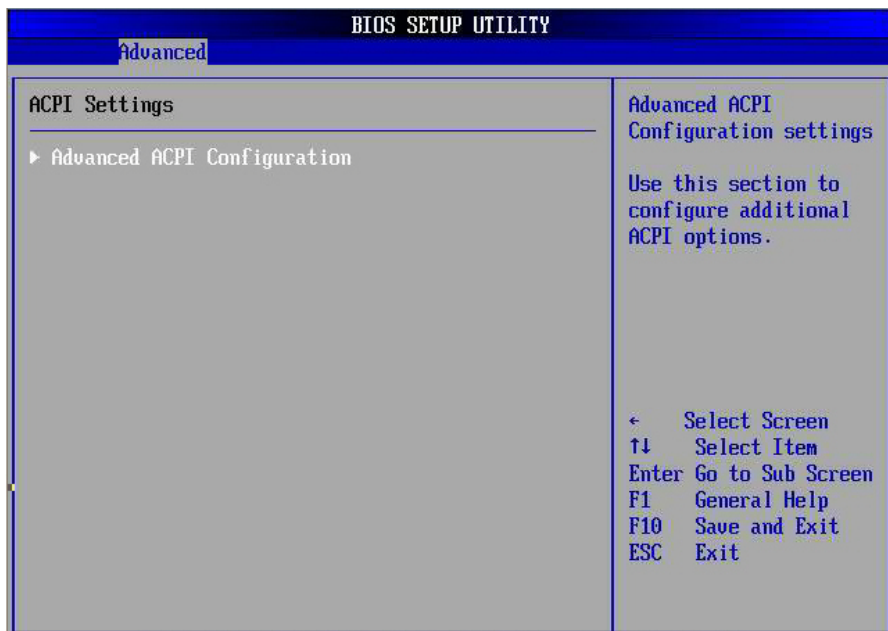
Disabled / 378 / 278 / 3BC

Parallel Port IRQ

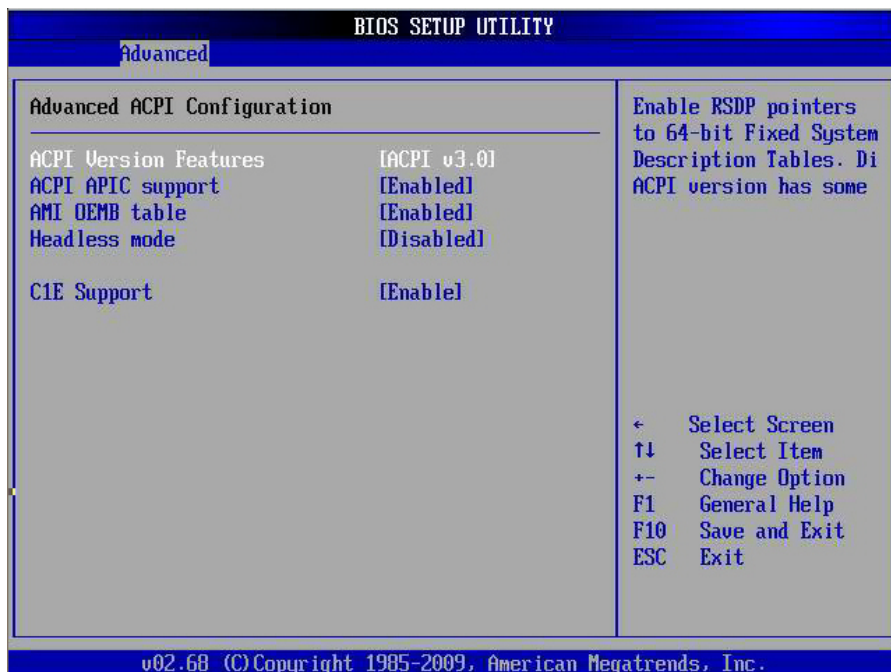
Allows BIOS to select Parallel Port IRQ

IRQ7 / IRQ5

3.3.4 ACPI Configuration



3.3.4.1 Advanced ACPI Configuration



ACPI Version Features

Set this value to allow or prevent the system to be compliant with the ACPI 2.0 specification.

ACPI 3.0 / ACPI 2.0 / ACPI 1.0

ACPI APIC Support

This option allows you to define whether or not to enable APIC features.

Enabled / Disabled

AMI OEMB Table

Set this value to allow the ACPI BIOS to add a pointer to an OEMB table in the Root System Description Table (RSDT) table.

Enabled / Disabled

NOTE: OEMB table is used to pass POST data to the AMI code during ACPI O/S operations.

Headless Mode

Enable or disable Headless operation mode through ACPI.

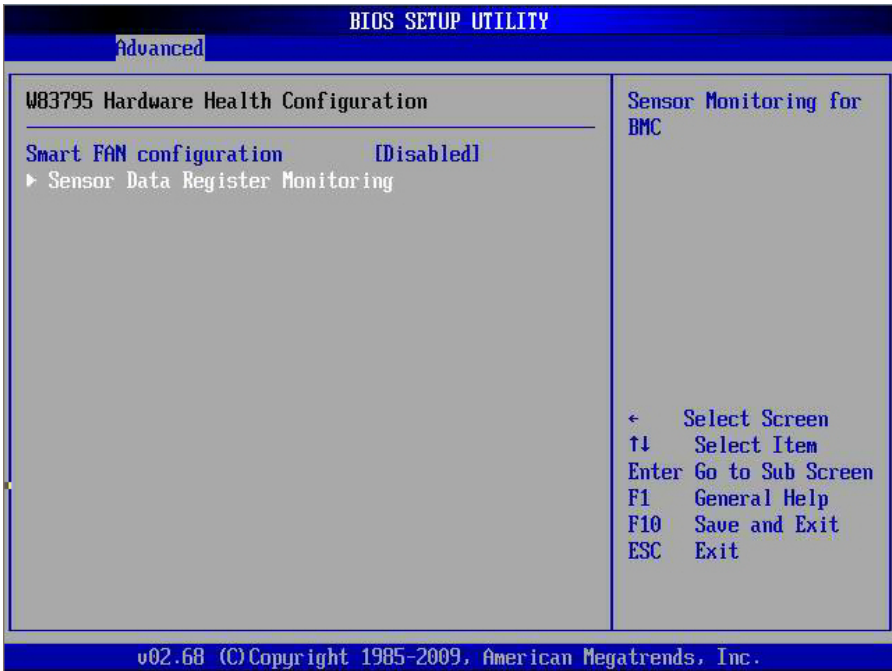
Disabled / Enabled

C1E Support

Enhanced C1 state support.

Disabled / **Enabled**

3.3.5 Hardware Health Configuration



Smart FAN Configuration

Select Smart FAN mode:

- Disable:
- Smart Fan: fan speed up as temperature goes up
Smart Fan / **Disabled**

Sensor Data Register Monitoring

Sensor Monitoring for BMC

3.3.5.1 Sensor Data Register Monitoring

Advanced			
ID#	NAME	READING	STATUS
10	12V1	:12.040 V	OK
11	12V	:11.954 V	OK
12	SIO_AVCC	:3.312 V	OK
13	VCC3.3	:3.328 V	OK
16	12V	:11.868 V	OK
1E	3.3V DUAL	:3.280 V	OK
1F	VBAT	:3.248 V	OK
30	P0_VDD	:1.096 V	OK
31	P0_VDDNB	:1.080 V	OK
32	P1_VDD	:1.096 V	OK
33	P1_VDDNB	:1.072 V	OK
34	P0_VTT	:0.736 V	OK
35	P1_VTT	:0.744 V	OK
36	CPU0_VLDT	:1.192 V	OK
37	CPU1_VLDT	:1.184 V	OK
38	VDDPCIE_RD890	:1.112 V	OK
39	VDDC_RD890	:1.128 V	OK
▶ SDR Monitoring Next Page			
Press Enter key to display remain sensor ESC key to return this page. ← Select Screen ↑↓ Select Item Enter Go to Sub Screen F1 General Help F10 Save and Exit ESC Exit			
v02.68 (C) Copyright 1985-2009, American Megatrends, Inc.			

Read only. It can not be modified in user mode.

3.3.6 IPMI 2.0 Configuration



View BMC System Event Log

View all events in the BMC Event Log. It will take a max. of 15 seconds to read all BMC SEL records.

Clear BMC System Event Log

Clear all events in BMC System Event Log.

Set LAN Configuration

Set LAN Configuration Parameters Command.

Set PEF Configuration

Set PEF Configuration Parameters Command.

BMC Watch Dog Timer Action

Allows the BMC to reset or power down the system if the operating system crashes or hangs.

Disabled / Enabled

BMC Alert LED and Beep

BMC Alert LED and Beep.

OFF / ON

FW Key

Enter IPMI FW Key upgrade to IPMI or iKVM function.
[0000000]

3.2.6.1 View BMC System Event Log

BIOS SETUP UTILITY	
Advanced	
Total Number Of Entries:	295
<hr/>	
SEL Entry Number:	[1]
SEL Record ID:	0001
SEL Record Type:	02 (System Event)
Event Timestamp:	Mar 5, 2010 10:48:13
Generator ID:	0001
Event Message Format Ver:	04 (IPMI ver 2.0)
Event Sensor Type:	0F (POST Error)
Event Sensor Number:	00
Event Dir Type:	00
Event Data:	00 07 00
Use +/- to traverse the event log.	
← Select Screen	
↑↓ Select Item	
+- Change Option	
F1 General Help	
F10 Save and Exit	
ESC Exit	
v02.68 (C)Copyright 1985-2009, American Megatrends, Inc.	

Read only. It can not be modified in user mode.

3.2.6.2 LAN Configuration

BIOS SETUP UTILITY	
Advanced	
LAN Configuration Status.	This group provide setup function for
Current IP source in BMC: [DHCP]	1. IP Address Source
Current IP address in BMC: 192.168.000.058	2. IP Address
Current Subnet Mask in BMC: 255.255.255.000	3. Subnet Mask
Current Gateway address in BMC: 192.168.000.001	4. Gateway Address
Current MAC address in BMC: 00.E0.81.F0.25.FA	
▶ Setup LAN Configuration	
	← Select Screen ↑↓ Select Item Enter Go to Sub Screen F1 General Help F10 Save and Exit ESC Exit
v02.68 (C) Copyright 1985-2009, American Megatrends, Inc.	

Read only. It can not be modified in user mode.

3.2.6.2.1 Setup LAN Configuration

BIOS SETUP UTILITY	
Advanced	
Setup LAN Configuration.	
IP Address Source	[STATIC]
IP Address	[192.168.000.022]
Subnet Mask	[255.255.255.000]
Save LAN Configuration	
IPMI IP Address Source STATIC / DHCP	
After setup LAN Configure need select Save LAN Configuration and choice [OK] to enabled changes.	
← Select Screen ↑↓ Select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit	
v02.68 (C)Copyright 1985-2009, American Megatrends, Inc.	

IP Address Source

Select IPMI IP Address Source.

STATIC / DHCP

NOTE:

IP Address and **Subnet Mask** appear when **IP Address Source** is set to [STATIC].

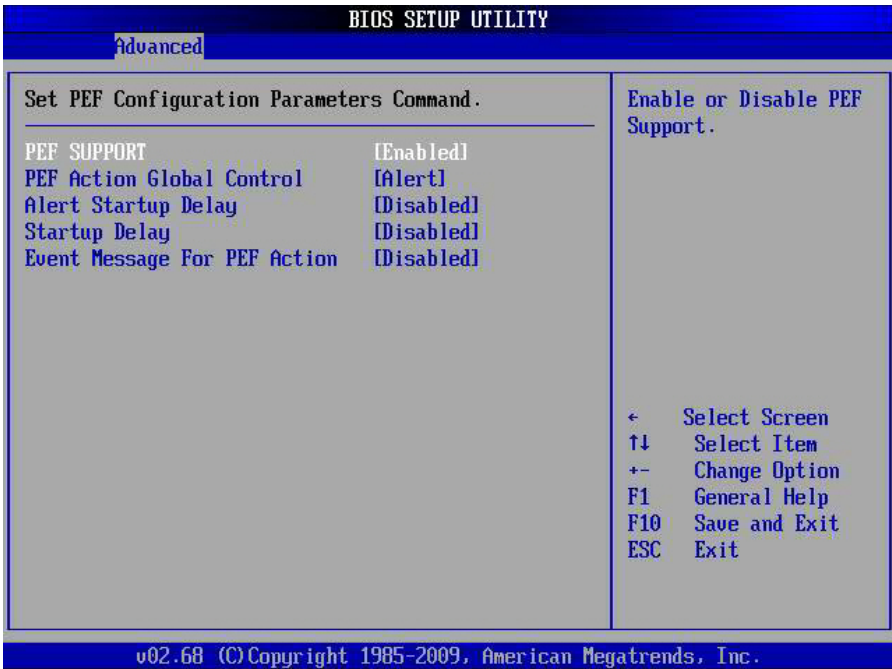
IP Address / Subnet Mask

Read only. It can not be modified in user mode.

Save LAN Configuration

After setup LAN Configuration, select Save LAN Configuration and click [OK] to enable changes.

3.2.6.3 Set PEF Configuration



PEF Support

Enable or disable PEF support.

Enabled / Disabled

PEF Action Global Control

Select action for PEF Action Global Control.

Alert / Power Down / Reset System / Power Cycle / OEM Action /
Diagnostic. Int.

Alert Startup Delay

Enable/disable Alert Startup Delay.

Disabled / Enabled

Startup Delay

Enable/disable Startup Delay.

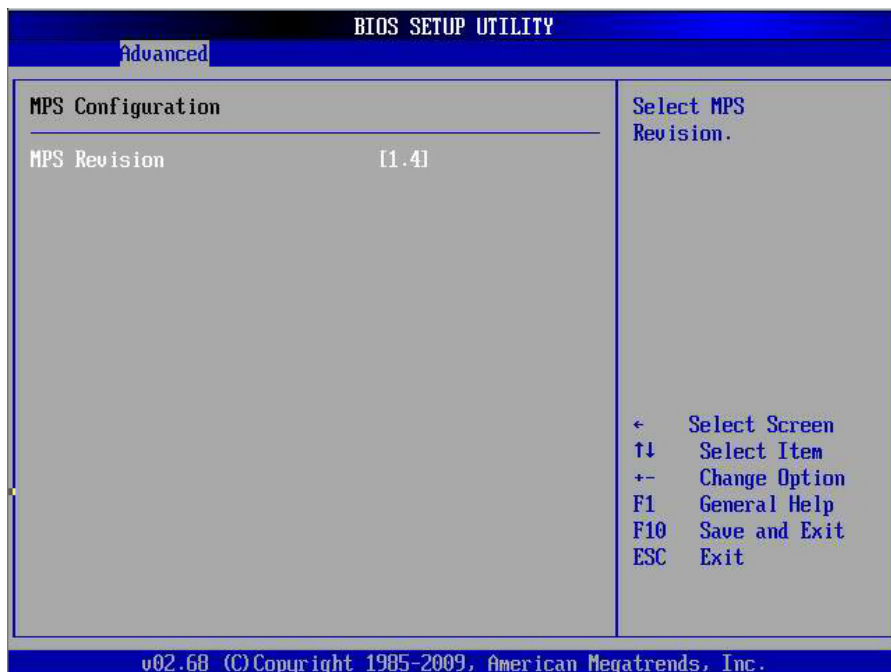
Disabled / Enabled

Event Message For PEF Action

Enable/disable Event Message for PEF Action.

Disabled / Enabled

3.3.7 MPS Configuration

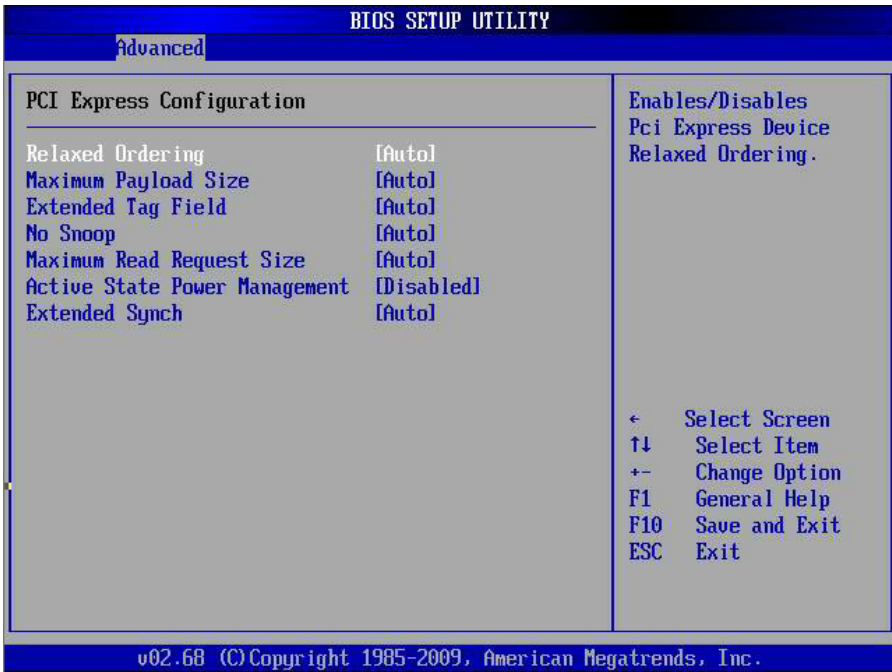


MPS Revision

Select MPS Revision.

1.4 / 1.1

3.3.8 PCI-Express Configuration



Relax Ordering

Enables / Disables PCI Express Device Relaxed Ordering.

Auto / Disabled / Enabled

Maximum Payload Size

Set Maximum Payload of PCI Express Device or allow System BIOS select the value.

Auto / Disabled

Extended Tag Field

If Enabled, allows Device to use 8-bit Tag field as a requester.

Auto / Disabled

No Snoop

Enables/Disables PCI Express Device No Snoop option.

Auto / Disabled

Maximum Read Request Size

Set Maximum Read Request Size of PCI Express Device or allow System BIOS select the value.

Auto / Disabled

Active State Power Management

Enable/disable PCI Express L0s AND L1 link power states.

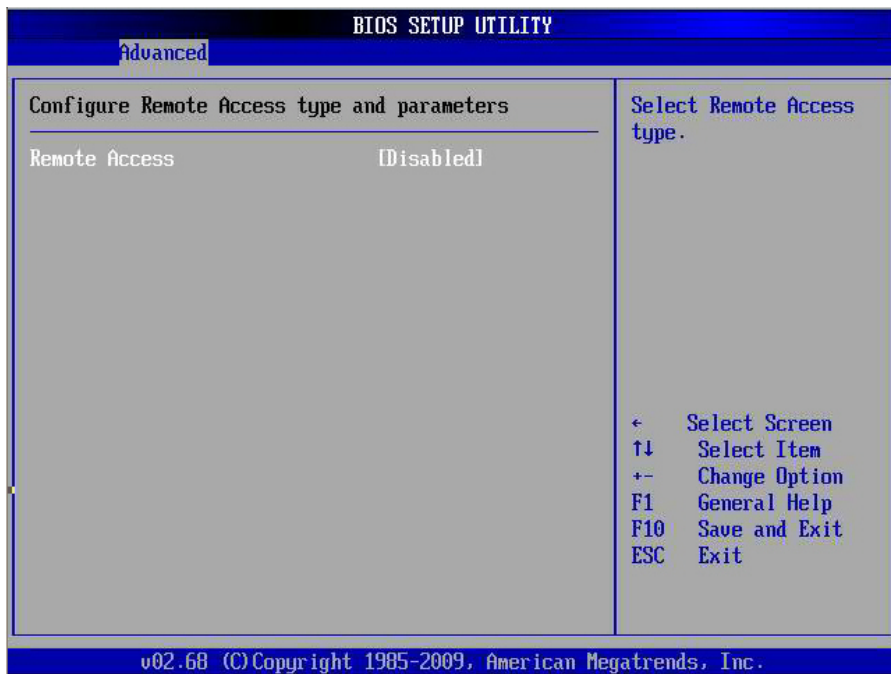
Disabled / Enabled

Extended Synch

If enabled, allows generation of Extended Synchronization patterns.

Auto / Disabled

3.3.9 Remote Access Configuration



Remote Access

Enables remote access to system through serial port.

Disabled / Enabled

NOTE:

The following BIOS items are available only when **Remove Access** is set to [Enabled].

Serial Port Number

Select Serial Port for cosole redirection. Make sure the selected port is enabled.

COM1 / COM2 / COM3 (virtual for BMC)

Serial Port Mode

Select Serial Port settings.

Flow Control

Select Flow Control for console redirection.

None / Hardware / Software

Redirection After BIOS POST

Disabled: Turns off the redirection after POST Boot Loader.

Boot Loader: Redirection is active during POST and during Boot Loader.

Always: Redirection is always active. (Some Oss may not work if set to Always)

Always / Disabled / Boot Loader

Terminal Type

Select the target terminal type.

ANSI / VT100 / VT-UTF8

VT-UTF8 Combo Key Support

Enable VT-UFT8 Combination Key Support for ANSI/VT100 terminals.

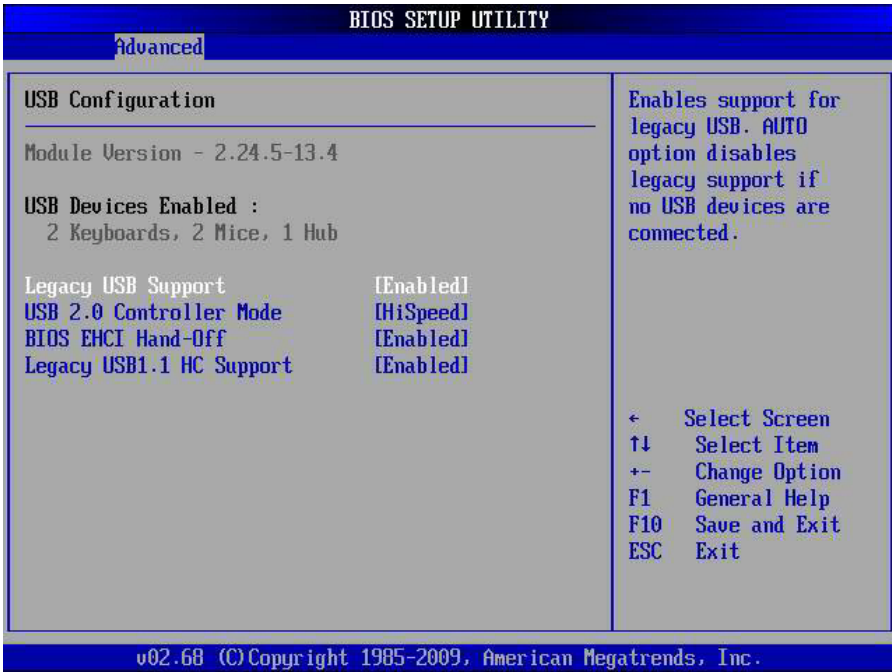
Enabled / Disabled

Sredir Memory Display Delay

Gives the delay in seconds to display memory information.

No Delay / Delay 1 Sec / Delay 2 Sec / Delay 4 Sec

3.3.10 USB Configuration



Legacy USB Support

Enables support for legacy USB. AUTO option disables legacy support if no USB devices are connected.

Enabled / Disabled / Auto

USB 2.0 Controller Mode

Configure the USB 2.0 controller in Hi Speed (480 Mbps) or Full Speed (12Mbps).

Hi Speed / Full Speed

BIOS EHCI Hand-OFF

This is a work around for OSeS without EHCI hand-off support. The EHCI ownership change should claim by EHCI driver.

Enabled / Disabled

Legacy USB1.1 HC Support

Enables support for legacy USB. Auto option disables legacy support if no USB devices are connected.

Enabled / Disabled

3.4 PCI/PnP Menu



Clear NVRAM

Clear NVRAM during system Boot.

No / Yes

Plug & Play O/S

No: lets the BIOS configure all the devices in the system.

Yes: lets the operating system configure Plug and Play (PnP) devices not required for boot if your system has a Plug and Play operating system.

No / Yes

PCI Latency Timer

This setting controls how many PCI clocks each PCI device can hold the bus before another PCI device takes over. When set to higher values, every PCI device can conduct transactions for a longer time and thus improve the effective PCI bandwidth.

Values in units of PCI clocks for PCI device latency timer register

64 / 32 / 96 / 128 / 160 / 192 / 224 / 248

Allocate IRQ to PCI VGA

Yes: assigns IRQ to PCI VGA card if card requests IRQ.

Yes / No

Palette Snooping

This is the default setting and should not be changed unless the VGA card manufacturer requires Palette Snooping to be Enabled.

Enabled: informs the PCI devices that an ISA graphics device is installed in the system so the card will function correctly.

Disabled / Enabled

PCI IDE Bus Master

Enabled: BIOS uses PCI bus mastering for reading / writing to IDE drives.

Enabled / Disabled

Offboard PCI/ISA IDE Card

Some PCI IDE cards may require this to be set to the PCI slot number that is holding the card.

Auto: Works for most PCI IDE cards.

Auto / PCI Slot 1 / PCI Slot 2 / PCI Slot 3 / PCI Slot 4 / PCI Slot 5 /
PCI Slot 6

3.5 Boot Menu



Quick Boot

This option allows user bypass BIOS self test during POST.

Enabled / Disabled

Quiet Boot

Disabled: displays normal POST messages.

Enabled: displays OEM log instead of POST messages.

Disabled / Enabled

Add On ROM Display Mode

Allows user to force BIOS/Option ROM of add-on cards to be displayed during quiet boot.

Force BIOS / Keep Current

Boot Up Num-Lock

Selects Power-on state for Numlock.

On / Off

PS/2 Mouse Support

Select support for PS/2 Mouse.

Auto / Enabled / Disabled

Wait for 'F1' If Error

Waits for F1 key to be present if error occurs.

Enabled / Disabled

Hit 'DEL' Message Display

Displays "Press DEL to run Setup in POST".

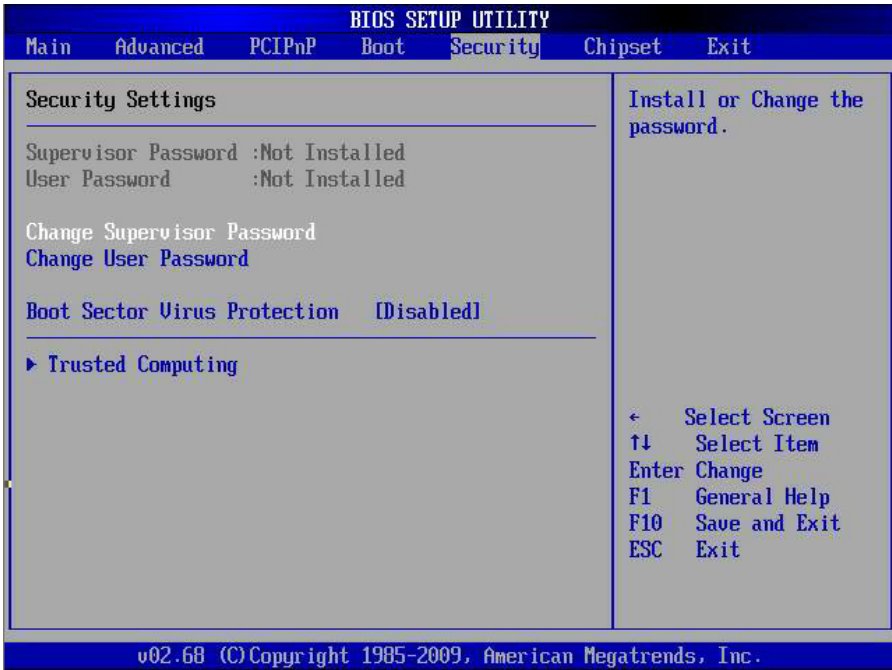
Enabled / Disabled

Interrupt 19 Capture

Enabled: allows option ROMs to trap interrupt 19.

Enabled / Disabled

3.6 Security Menu



Supervisor Password/User Password

Read only.

Change Supervisor Password

Install or change the password.

Change User Password

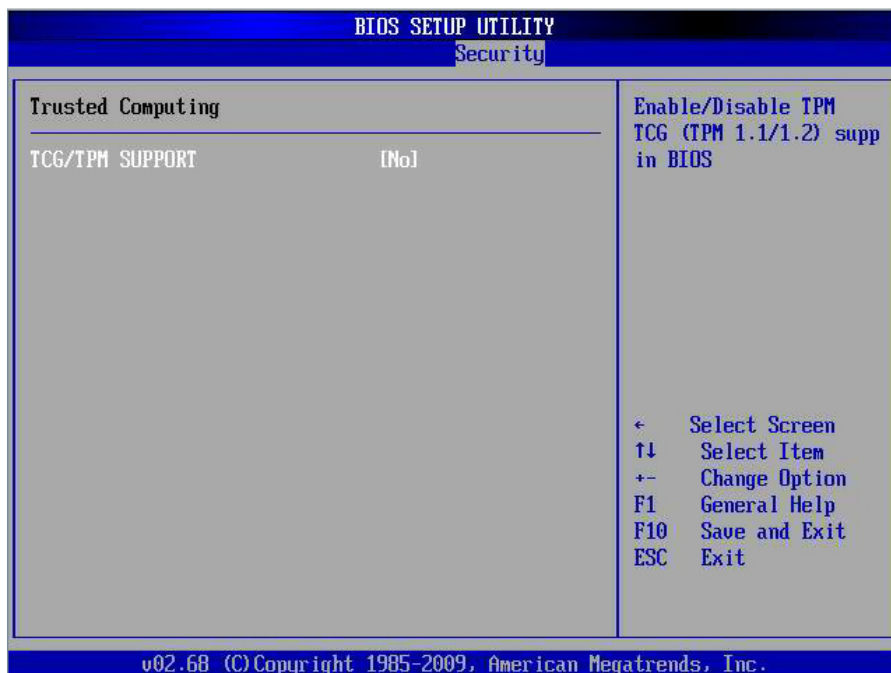
Install or change the password.

Boot Sector Virus Protection

When it is set to [Enabled], BIOS will issue a virus warning message and beep if a write to the boot sector or the partition table of the HDD is attempted.

Disabled / Enabled

3.6.1 Trusted Computing



TCG/TPM Support

Enable / Disable TPM TCG (TPM 1.1/1.2) support in BIOS.

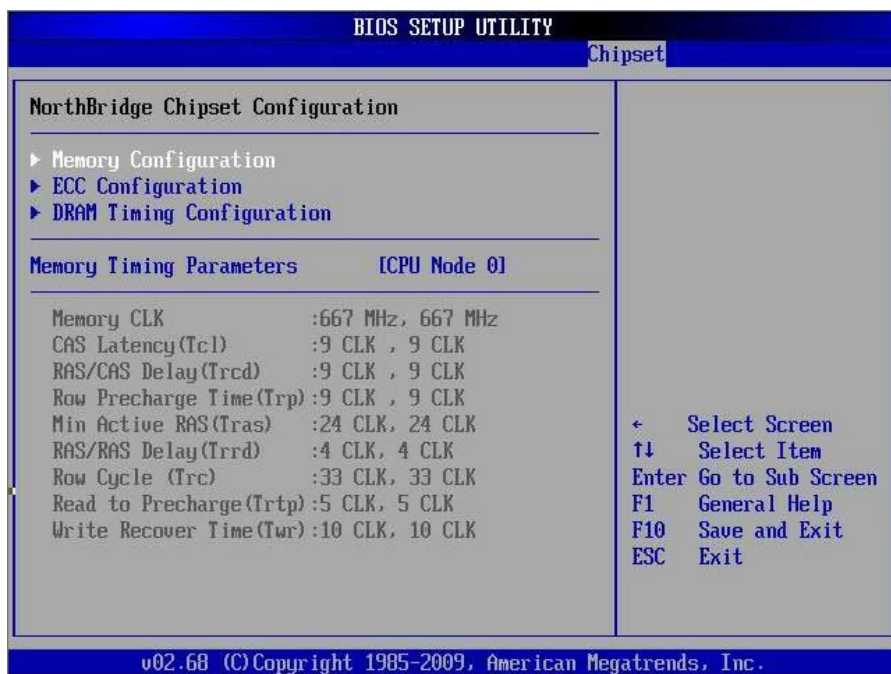
No / Yes

3.7 Chipset Menu



Allows you to change NorthBridge, SouthBridge, RD890 and Onboard Peripherals Configuration.

3.7.1 North Bridge Configuration



Memory Timing Parameters

To select which node's timing parameters to display.

CPU Node 0 / CPU Node 1

3.7.1.1 Memory Configuration



Bank Interleaving

Bank Interleave setting has to do with the actual RAM chip properties, most good quality RAM chips have "4-bank interleaving" and work best at this setting. Interleaving controls how actual hits to memory takes place.
Enable Bank Memory Interleaving.

Auto / Disabled

Node Interleaving

Enable Node Memory Interleaving.

Disabled / Enabled

Channel Interleaving

Enable Channel Memory Interleaving.

Auto / Disabled

CS Sparing Enable

Reserve a spare memory rank in each node.

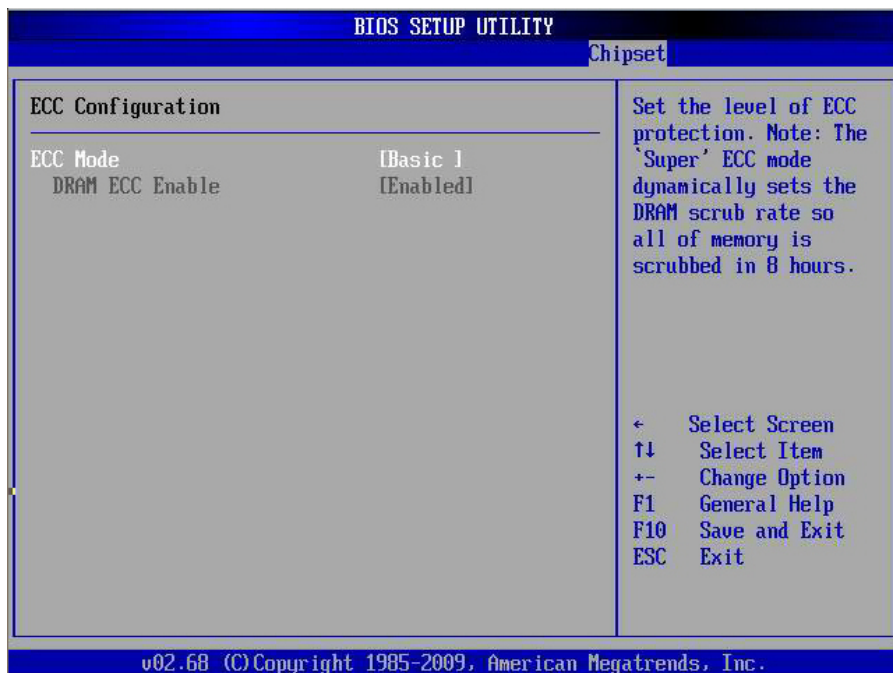
Disabled / Enabled

Bank Swizzle Mode

Enable or disable bank swizzle mode.

Enabled / Disabled

3.7.1.2 ECC Configuration



ECC Mode

Select the level of ECC protection. Note: The "Super" ECC mode dynamically sets the DRAM scrub rate so all of memory is scrubbed in 8 hours.

Basic / Super / Disabled / Good / Max / User

DRAM ECC Enable

DRAM ECC allows hardware to report and correct memory errors automatically maintaining system integrity.

Enabled / Disabled

3.7.1.3 DRAM Timing Configuration



DRAM Timing Config

Select the DRAM Frequency programming method. If Auto, the DRAM speed will be based on SPDs. If Limit, the DRAM speed will not exceed the specified value. If Manual, the DRAM speed specified will be programmed by users.

Auto / Manual / Limit

3.7.2 South Bridge Configuration

BIOS SETUP UTILITY	
Chipset	
SouthBridge Chipset Configuration	
SB700 CIMx Version : 5.4.0	
<hr/>	
OHCI HC(Bus 0 Dev 18 Fn 0)	[Enabled]
OHCI HC(Bus0 Dev 18 Fn 1)	[Enabled]
EHCI HC(Bus0 Dev 18 Fn 2)	[Enabled]
OHCI HC(Bus0 Dev 19 Func 0)	[Enabled]
OHCI HC(Bus 0 Dev 19 Func 1)	[Enabled]
EHCI HC(Bus 0 Dev 19 Fn 2)	[Enabled]
OHCI HC (Bus 0 Dev 20 Fn 5)	[Enabled]
<hr/>	
OnChip SATA Channel	[Enabled]
OnChip SATA Type	[Native IDE]
SATA IDE Combined Mode	[Enabled]
PATA Channel Config	[SATA as primary]
<hr/>	
Power Saving Features	[Disabled]
<hr/>	
Options	
Disabled	
Enabled	
<hr/>	
←	Select Screen
↑↓	Select Item
+−	Change Option
F1	General Help
F10	Save and Exit
ESC	Exit

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OnChip SATA Channel

Enable or disable OnChip SATA channel.

Enabled / Disabled

OnChip SATA Type

Select OnChip SATA type.

Native IDE / RAID / AHCI

SATA IDE Combined Mode

Disabled / **Enabled**

PATA Channel Config

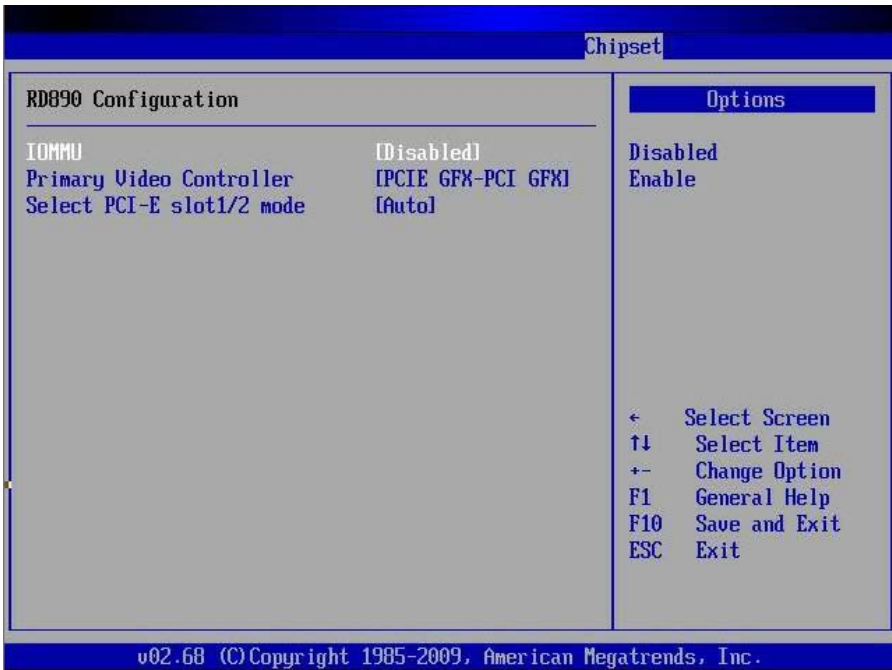
SATA as primary / SATA as secondary

Power Saving Features

Enable/Disable power saving features in SB. As general rule, this feature should be disabled for desktop and enabled for mobile. See AMD SB700 Power Saving document for more details.

Enabled / **Disabled**

3.7.3 RD890 Configuration



IOMMU

Disable or Enable IOMMU function.

Disabled / Enabled

Primary Video Controller

PCIe GFX-PCI GFX: Video card scan from PCIe bus to PCI bus.

PCI GFX-PCIe GFX: Video card scan from PCI bus (onboard VGA) to PCIe bus.

PCIe GFX-PCI GFX / PCI GFX-PCIe GFX

Select PCI-E slot1/2 mode

Auto: auto detect by BIOS

1x16: Slot1 – x16, Slot2 – not work

2x8: Slot1 – x8, Slot2 – x8

Auto / 1x16 / 2x8

3.7.4 Onboard Peripherals Configuration

Chipset		
OnBoard LSI SAS2008	[Enable]	Options Enable Disabled ← Select Screen ↑↓ Select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit
SAS OPTROM	[Enable]	
OnBoard i82576 NIC	[Enable]	
i82576 PORT1 PXE	[Disabled]	
i82576 PORT2 PXE	[Disabled]	
OnBoard i82574 NIC #1	[Enable]	
i82574 #1 PXE	[Disabled]	
OnBoard i82574 NIC #2	[Enable]	
i82574 #2 PXE	[Disabled]	
<hr/>		
Restore on AC Power Loss	[Power Off]	
Chassis intrusion detection	[Disabled]	
Watchdog Mode	[Disabled]	

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Restore On AC Power Loss

Configure how the system board responds to a power failure.

Power Off / Power On / Last State

Chassis Intrusion Detection

Disabled: Disable Chassis Intrusion Detection.

Enabled: When a chassis open event is detected, the BIOS will record the event and issue a warning beep.

Disabled / Enabled

Watchdog Mode

Disabled: Disable Watchdog

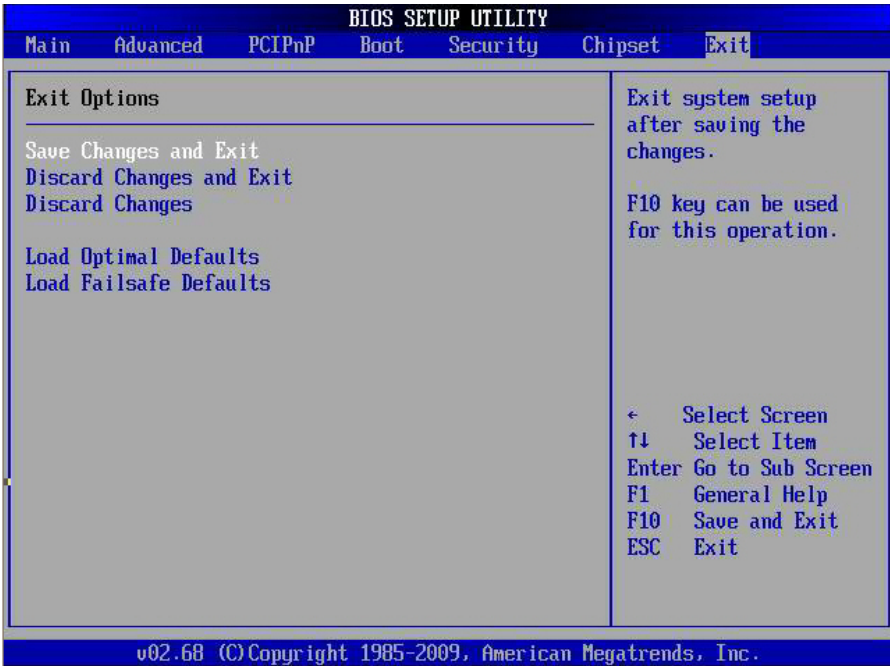
POST: BIOS POST Watchdog, timer counting starts at PowerOn, stops at OS boot

OS: Boot Watchdog, starts at OS boot

PowerOn: Start at PowerOn

Disabled / PowerOn / POST / OS

3.8 Exit Menu



Save Changes and Exit

Use this option to exit setup utility and re-boot.
All new selections you have made are stored into CMOS.
System will use the new settings to boot up.

Discard Changes and Exit

Use this option to exit setup utility and re-boot.
All new selections you have made are not stored into CMOS.
System will use the old settings to boot up.

Discard Changes

Use this option to restore all new setup values that you have made but not saved into CMOS.

Load Optimal Defaults

Use this option to load default performance setup values.
Use this option when system CMOS values have been corrupted or modified incorrectly.

Load Failsafe Defaults

Use this option to load all default failsafe setup values.
Use this option when troubleshooting.

NOTE

Chapter 4: Diagnostics

NOTE: if you experience problems with setting up your system, always check the following things in the following order:

Memory, Video, CPU

By checking these items, you will most likely find out what the problem might have been when setting up your system. For more information on troubleshooting, check the TYAN website at <http://www.tyan.com>.

4.1 Beep Codes

Fatal errors, which halt the boot process, are communicated through two kinds of audible beeps.

- Eight short beeps: It indicates that a video error has occurred.
 - A single long beep repeatedly: It indicates that a DRAM error has occurred.
- The most common type of error is a memory error.

Before contacting your vendor or TYAN Technical Support, be sure that you note as much as you can about the beep code length and order that you experience. Also, be ready with information regarding add-in cards, drives and O/S to speed the support process and come to a quicker solution.

4.2 Flash Utility

Every BIOS file is unique for the motherboard it was designed for. For Flash Utilities, BIOS downloads, and information on how to properly use the Flash Utility with your motherboard, please check the TYAN web site at <http://www.tyan.com>

NOTE: Please be aware that by flashing your BIOS, you agree that in the event of a BIOS flash failure, you must contact your dealer for a replacement BIOS. There are no exceptions. TYAN does not have a policy for replacing BIOS chips directly with end users. In no event will TYAN be held responsible for damages done by the end user.

4.3 AMIBIOS Post Code

The POST code checkpoints are the largest set of checkpoints during the BIOS pre-boot process. The following table describes the type of checkpoints that may occur during the POST portion of the BIOS:

Checkpoint	Description
03	Disable NMI, Parity, video for EGA, and DMA controllers. Initialize BIOS, POST, Runtime data area. Also initialize BIOS modules on POST entry and GPNV area. Initialize CMOS as mentioned in the Kernel Variable "wCMOSFlags."
04	Check CMOS diagnostic byte to determine if battery power is OK and CMOS checksum is OK. Verify CMOS checksum manually by reading storage area. If the CMOS checksum is bad, update CMOS with power-on default values and clear passwords. Initialize status register A. Initializes data variables that are based on CMOS setup questions. Initializes both the 8259 compatible PICs in the system
05	Initializes the interrupt controlling hardware (generally PIC) and interrupt vector table.
06	Do R/W test to CH-2 count reg. Initialize CH-0 as system timer. Install the POSTINT1Ch handler. Enable IRQ-0 in PIC for system timer interrupt. Traps INT1Ch vector to "POSTINT1ChHandlerBlock."
08	Initializes the CPU. The BAT test is being done on KBC. Program the keyboard controller command byte is being done after Auto detection of KB/MS using AMI KB-5.
0A	Initializes the 8042 compatible Key Board Controller.
0B	Detects the presence of PS/2 mouse.
0C	Detects the presence of Keyboard in KBC port.
0E	Testing and initialization of different Input Devices. Also, update the Kernel Variables. Traps the INT09h vector, so that the POST INT09h handler gets control for IRQ1. Uncompress all available language, BIOS logo, and Silent logo modules.
13	Early POST initialization of chipset registers.
24	Uncompress and initialize any platform specific BIOS modules.
30	Initialize System Management Interrupt.
2A	Initializes different devices through DIM. See <i>DIM Code Checkpoints</i> section of document for more information.
2C	Initializes different devices. Detects and initializes the video adapter installed in the system that have optional ROMs.
2E	Initializes all the output devices.
31	Allocate memory for ADM module and uncompress it. Give control to ADM module for initialization. Initialize language and font modules for ADM. Activate ADM module.
33	Initializes the silent boot module. Set the window for displaying text information.

Checkpoint	Description
37	Displaying sign-on message, CPU information, setup key message, and any OEM specific information.
38	Initializes different devices through DIM. See <i>DIM Code Checkpoints</i> section of document for more information.
39	Initializes DMAC-1 & DMAC-2.
3A	Initialize RTC date/time.
3B	Test for total memory installed in the system. Also, Check for DEL or ESC keys to limit memory test. Display total memory in the system.
3C	Mid POST initialization of chipset registers.
40	Detect different devices (Parallel ports, serial ports, and coprocessor in CPU, ... etc.) successfully installed in the system and update the BDA, EBDA...etc.
50	Programming the memory hole or any kind of implementation that needs an adjustment in system RAM size if needed.
52	Updates CMOS memory size from memory found in memory test. Allocates memory for Extended BIOS Data Area from base memory.
60	Initializes NUM-LOCK status and programs the KBD typematic rate.
75	Initialize Int-13 and prepare for IPL detection.
78	Initializes IPL devices controlled by BIOS and option ROMs.
7A	Initializes remaining option ROMs.
7C	Generate and write contents of ESCD in NVRam.
84	Log errors encountered during POST.
85	Display errors to the user and gets the user response for error.
87	Execute BIOS setup if needed / requested.
8C	Late POST initialization of chipset registers.
8E	Program the peripheral parameters. Enable/Disable NMI as selected
90	Late POST initialization of system management interrupt.
A0	Check boot password if installed.
A1	Clean-up work needed before booting to OS.
A2	Takes care of runtime image preparation for different BIOS modules. Fill the free area in F000h segment with 0FFh. Initializes the Microsoft IRQ Routing Table. Prepares the runtime language module. Disables the system configuration display if needed.
A4	Initialize runtime language module.
A7	Displays the system configuration screen if enabled. Initialize the CPU's before boot, which includes the programming of the MTRR's.
A8	Prepare CPU for OS boot including final MTRR values.
A9	Wait for user input at config display if needed.
AA	Uninstall POST INT1Ch vector and INT09h vector. Deinitializes the ADM module.
AB	Prepare BBS for Int 19 boot.
AC	End of POST initialization of chipset registers.
B1	Save system context for ACPI.
00	Passes control to OS Loader (typically INT19h).

NOTE

Glossary

ACPI (Advanced Configuration and Power Interface): a power management specification that allows the operating system to control the amount of power distributed to the computer's devices. Devices not in use can be turned off, reducing unnecessary power expenditure.

AGP (Accelerated Graphics Port): a PCI-based interface which was designed specifically for demands of 3D graphics applications. The 32-bit AGP channel directly links the graphics controller to the main memory. While the channel runs only at 66 MHz, it supports data transmission during both the rising and falling ends of the clock cycle, yielding an effective speed of 133 MHz.

ATAPI (AT Attachment Packet Interface): also known as IDE or ATA; a drive implementation that includes the disk controller on the device itself. It allows CD-ROMs and tape drives to be configured as master or slave devices, just like HDDs.

ATX: the form factor designed to replace the AT form factor. It improves on the AT design by rotating the board 90 degrees, so that the IDE connectors are closer to the drive bays, and the CPU is closer to the power supply and cooling fan. The keyboard, mouse, USB, serial, and parallel ports are built-in.

Bandwidth: refers to carrying capacity. The greater the bandwidth, the more data the bus, phone line, or other electrical path can carry. Greater bandwidth results in greater speed.

BBS (BIOS Boot Specification): a feature within the BIOS that creates, prioritizes, and maintains a list of all Initial Program Load (IPL) devices, and then stores that list in NVRAM. IPL devices have the ability to load and execute an OS, as well as provide the ability to return to the BIOS if the OS load process fails. At that point, the next IPL device is called upon to attempt loading of the OS.

BIOS (Basic Input/Output System): the program that resides in the ROM chip, which provides the basic instructions for controlling your computer's hardware. Both the operating system and application software use BIOS routines to ensure compatibility.

Buffer: a portion of RAM which is used to temporarily store data; usually from an application though it is also used when printing and in most keyboard drivers. The CPU can manipulate data in a buffer before copying it to a disk drive. While this improves system performance (reading to or writing from a disk drive a single time is much faster than doing so repeatedly) there is the possibility of losing your data should the system crash. Information in a buffer is temporarily stored, not permanently saved.

Bus: a data pathway. The term is used especially to refer to the connection between the processor and system memory, and between the processor and PCI or ISA local buses.

Bus mastering: allows peripheral devices and IDEs to access the system memory without going through the CPU (similar to DMA channels).

Cache: a temporary storage area for data that will be needed often by an application. Using a cache lowers data access times since the information is stored in SRAM instead of slower DRAM. Note that the cache is also much smaller than your regular memory: a typical cache size is 512KB, while you may have as much as 4GB of regular memory.

Closed and open jumpers: jumpers and jumper pins are active when they are “on” or “closed”, and inactive when they are “off” or “open”.

CMOS (Complementary Metal-Oxide Semiconductors): chips that hold the basic startup information for the BIOS.

COM port: another name for the serial port, which is called as such because it transmits the eight bits of a byte of data along one wire, and receives data on another single wire (that is, the data is transmitted in serial form, one bit after another). Parallel ports transmit the bits of a byte on eight different wires at the same time (that is, in parallel form, eight bits at the same time).

DDR (Double Data Rate): a technology designed to double the clock speed of the memory. It activates output on both the rising and falling edge of the system clock rather than on just the rising edge, potentially doubling output.

DIMM (Dual In-line Memory Module): faster and more capacious form of RAM than SIMMs, and do not need to be installed in pairs.

DIMM bank: sometimes called DIMM socket because the physical slot and the logical unit are the same. That is, one DIMM module fits into one DIMM socket, which is capable of acting as a memory bank.

DMA (Direct Memory Access): channels that are similar to IRQs. DMA channels allow hardware devices (like soundcards or keyboards) to access the main memory without involving the CPU. This frees up CPU resources for other tasks. As with IRQs, it is vital that you do not double up devices on a single line. Plug-n-Play devices will take care of this for you.

DRAM (Dynamic RAM): widely available, very affordable form of RAM which loses data if it is not recharged regularly (every few milliseconds). This refresh requirement makes DRAM three to ten times slower than non-recharged RAM such as SRAM.

ECC (Error Correction Code or Error Checking and Correcting): allows data to be checked for errors during run-time. Errors can subsequently be corrected at the same time that they're found.

EEPROM (Electrically Erasable Programmable ROM): also called Flash BIOS, it is a ROM chip which can, unlike normal ROM, be updated. This allows you to keep up with changes in the BIOS programs without having to buy a new chip. TYAN®'s BIOS updates can be found at <http://www.tyan.com>

ESCD (Extended System Configuration Data): a format for storing information about Plug-n-Play devices in the system BIOS. This information helps properly configure the system each time it boots.

Firmware: low-level software that controls the system hardware.

Form factor: an industry term for the size, shape, power supply type, and external connector type of the Personal Computer Board (PCB) or motherboard. The standard form factors are the AT and ATX.

Global timer: onboard hardware timer, such as the Real-Time Clock (RTC).

HDD: stands for Hard Disk Drive, a type of fixed drive.

H-SYNC: controls the horizontal synchronization/properties of the monitor.

HyperTransport™: a high speed, low latency, scalable point-to-point link for interconnecting ICs on boards. It can be significantly faster than a PCI bus for an equivalent number of pins. It provides the bandwidth and flexibility critical for today's networking and computing platforms while retaining the fundamental programming model of PCI.

IC (Integrated Circuit): the formal name for the computer chip.

IDE (Integrated Device/Drive Electronics): a simple, self-contained HDD interface. It can handle drives up to 8.4 GB in size. Almost all IDEs sold now are in fact Enhanced IDEs (EIDEs), with maximum capacity determined by the hardware controller.

IDE INT (IDE Interrupt): Hardware interrupt signal that goes to the IDE.

I/O (Input/Output): the connection between your computer and another piece of hardware (mouse, keyboard, etc.)

IRQ (Interrupt Request): an electronic request that runs from a hardware device to the CPU. The interrupt controller assigns priorities to incoming requests and delivers them to the CPU. It is important that there is only one device hooked up to each IRQ line; doubling up devices on IRQ lines can lock up your system. Plug-n-Play operating systems can take care of these details for you.

Latency: the amount of time that one part of a system spends waiting for another part to catch up. This occurs most commonly when the system sends data out to a peripheral device and has to wait for the peripheral to spread (peripherals tend to be slower than onboard system components).

NVRAM: ROM and EEPROM are both examples of Non-Volatile RAM, memory that holds its data without power. DRAM, in contrast, is volatile.

Parallel port: transmits the bits of a byte on eight different wires at the same time.

PCI (Peripheral Component Interconnect): a 32 or 64-bit local bus (data pathway) which is faster than the ISA bus. Local buses are those which operate within a single system (as opposed to a network bus, which connects multiple systems).

PCI PIO (PCI Programmable Input/Output) modes: the data transfer modes used by IDE drives. These modes use the CPU for data transfer (in contrast, DMA channels do not). PCI refers to the type of bus used by these modes to communicate with the CPU.

PCI-to-PCI Bridge: allows you to connect multiple PCI devices onto one PCI slot.

Pipeline burst SRAM: a fast secondary cache. It is used as a secondary cache because SRAM is slower than SDRAM, but usually larger. Data is cached first to the faster primary cache, and then, when the primary cache is full, to the slower secondary cache.

PnP (Plug-n-Play): a design standard that has become ascendant in the industry. Plug-n-Play devices require little set-up to use. Devices and operating systems that are not Plug-n-Play require you to reconfigure your system each time you add or change any part of your hardware.

PXE (Preboot Execution Environment): one of four components that together make up the Wired for Management 2.0 baseline specification. PXE was designed to define a standard set of preboot protocol services within a client with the goal of allowing networked-based booting to boot using industry standard protocols.

RAID (Redundant Array of Independent Disks): a way for the same data to be stored in different places on many hard drives. By using this method, the data is stored redundantly and multiple hard drives will appear as a single drive to the operating system. RAID level 0 is known as striping, where data is striped (or overlapped) across multiple hard drives, but offers no fault-tolerance. RAID level 1 is known as mirroring, which stores the data within at least two hard drives, but does not stripe. RAID level 10 also allows for faster access time and fault-tolerance, since either hard drive can be read at the same time. RAID level 0+1 is striping and mirroring, providing fault-tolerance, striping, and faster access all at the same time.

RAIDIOS: RAID I/O Steering (Intel)

RAM (Random Access Memory): technically refers to a type of memory where any byte can be accessed without touching the adjacent data and is often referred to the system's main memory. This memory is available to any program running on the computer.

ROM (Read-Only Memory): a storage chip which contains the BIOS; the basic instructions required to boot the computer and start up the operating system.

SDRAM (Synchronous Dynamic RAM): called as such because it can keep two sets of memory addresses open simultaneously. By transferring data alternately from one set of addresses and then the other, SDRAM cuts down on the delays associated with non-synchronous RAM, which must close one address bank before opening the next.

Serial port: called as such because it transmits the eight bits of a byte of data along one wire, and receives data on another single wire (that is, the data is transmitted in serial form, one bit after another).

SCSI Interrupt Steering Logic (SISL): Architecture that allows a RAID controller, such as AcceleRAID 150, 200 or 250, to implement RAID on a system board-embedded SCSI bus or a set of SCSI busses. SISL: SCSI Interrupt Steering Logic (LSI) (only on LSI SCSI boards)

Sleep/Suspend mode: in this mode, all devices except the CPU shut down.

SDRAM (Static RAM): unlike DRAM, this type of RAM does not need to be refreshed in order to prevent data loss. Thus, it is faster and more expensive.

SLI (Scalable Link Interface): NVIDIA SLI technology links two graphics cards together to provide scalability and increased performance. NVIDIA SLI takes advantage of the increased bandwidth of the PCI Express bus architecture, and features hardware and software innovations within NVIDIA GPUs (graphics processing units) and NVIDIA MCPs (media and communications processors). Depending on the application, NVIDIA SLI can deliver as much as two times the performance of a single GPU configuration.

Standby mode: in this mode, the video and hard drives shut down; all other devices continue to operate normally.

UltraDMA-33/66/100: a fast version of the old DMA channel. UltraDMA is also called UltraATA. Without a proper UltraDMA controller, your system cannot take advantage of higher data transfer rates of the new UltraDMA/UltraATA hard drives.

USB (Universal Serial Bus): a versatile port. This one port type can function as a serial, parallel, mouse, keyboard or joystick port. It is fast enough to support video transfer, and is capable of supporting up to 127 daisy-chained peripheral devices.

VGA (Video Graphics Array): the PC video display standard

V-SYNC: controls the vertical scanning properties of the monitor.

ZCR (Zero Channel RAID): PCI card that allows a RAID card to use the onboard SCSI chip, thus lowering cost of RAID solution

ZIF Socket (Zero Insertion Force socket): these sockets make it possible to insert CPUs without damaging the sensitive CPU pins. The CPU is lightly placed in an open ZIF socket, and a lever is pulled down. This shifts the processor over and down, guiding it into the board and locking it into place.

Technical Support

If a problem arises with your system, you should first turn to your dealer for direct support. Your system has most likely been configured or designed by them and they should have the best idea of what hardware and software your system contains. Hence, they should be of the most assistance for you. Furthermore, if you purchased your system from a dealer near you, take the system to them directly to have it serviced instead of attempting to do so yourself (which can have expensive consequences).

If these options are not available for you then TYAN[®] Computer Corporation can help. Besides designing innovative and quality products for over a decade, TYAN has continuously offered customers service beyond their expectations. TYAN[®]'s website (www.tyan.com) provides easy-to-access FAQ searches and online Trouble Ticket creation as well as Instant Chat capabilities with our Support Agents. TYAN[®] also provides easy-to-access resources such as in-depth Linux Online Support sections with downloadable Linux drivers and comprehensive compatibility reports for chassis, memory and much more. With all these convenient resources just a few keystrokes away, users can easily find the latest software and operating system components to keep their systems running as powerful and productive as possible. TYAN[®] also ranks high for its commitment to fast and friendly customer support through email. By offering plenty of options for users, TYAN[®] serves multiple market segments with the industry's most competitive services to support them.

"TYAN's tech support is some of the most impressive we've seen, with great response time and exceptional organization in general" - Anandtech.com

Help Resources:

1. See the beep codes section of this manual.
2. See the TYAN[®] website for FAQ's, bulletins, driver updates, and other information: <http://www.tyan.com>
3. Contact your dealer for help BEFORE calling TYAN[®].
4. Check the TYAN[®] user group: alt.comp.periphs.mainboard.TYAN

Returning Merchandise for Service

During the warranty period, contact your distributor or system vendor FIRST for any product problems. This warranty only covers normal customer use and does not cover damages incurred during shipping or failure due to the alteration, misuse, abuse, or improper maintenance of products.

NOTE:

A receipt or copy of your invoice marked with the date of purchase is required before any warranty service can be rendered. You may obtain service by calling the manufacturer for a Return Merchandise Authorization (RMA) number. The RMA number Should be prominently displayed on the outside of the shipping carton and the package should be mailed prepaid. TYAN® will pay to have the board shipped back to you.

**Notice for the USA**

Compliance Information Statement (Declaration of
Conformity Procedure) DoC

FCC Part 15: This device complies with part 15 of the FCC
Rules

Operation is subject to the following conditions:

This device may not cause harmful interference, and this device must accept any interference received including interference that may cause undesired operation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try one or more of the following measures:

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and the receiver.

Plug the equipment into an outlet on a circuit different from that of the receiver.

Consult the dealer on an experienced radio/television technician for help.

Notice for Canada

This apparatus complies with the Class B limits for radio interference as specified in the Canadian Department of Communications Radio Interference Regulations. (Cet appareil est conforme aux norms de Classe B d'interference radio tel que specifie par le Ministere Canadien des Communications dans les reglements d'interference radio.)

CAUTION: Lithium battery included with this board. Do not puncture, mutilate, or dispose of battery in fire. There is danger of an explosion if the battery is incorrectly replaced. Replace only with the same or equivalent type recommended by manufacturer. Dispose of used battery according to manufacturer instructions and in accordance with your local regulations.

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